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A CANADIAN BUSINESS PUBLICATION — APRIL 1999 — VOLUME 17 — NO. 4

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350 MHz

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### Intel® Pentium® II Processor 400 MHz

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• 15" monitor



400 MHz

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3C EDITION  
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## COMING UP

### July 1999

The personal system  
A/B/C/D/E/F/G/H/I/J/K/L/M/N/O/P/Q/R/S/T/U/V/W/X/Y/Z

Personal hardware and software

all Classified Tue, June 1  
Discussion Fri, June 18

### August 1999

Scaling the heights of multimedia  
Hardware

Hardware and design

all Classified Mon, June 28  
Discussion Fri, July 16

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### Where is Calgary based—and isn't you forget it, poster

In reading your May issue PCable kept for word to digital services by Jeff Brown I was fairly shocked to read that West Calgary's main office has moved to Richmond Hill. This is extremely disturbing (and also hilarious) given that the main office are in fact in Calgary, having moved there many years ago from Edmonton.

It may now shock Edmonton to learn that

there is a Western company based in Calgary and managed from Calgary. The article by Jeff Brown is mostly inaccurate in its claim that the office in Richmond Hill is anything other than a branch office of West Coast Cable.

PCP editor, Bevan Brown, don't let posters assume in Calgary. What the article should have stated was that the newly opened centre in Richmond Hill—which three executives told a

lot of jobs in clearing off despite that it's in the past of British is a regional distribution centre.

### Encryption and IE 5

I had just recently read your review about Internet Explorer 5.0 for "Internet Explorer 5.0 focuses on functionality" by Glenn Brainerd on May 19 (and) I thought it was very interesting. However, you had stated that there was no 128-bit encryption for IE 5.0 as true that IE 5.0 is not at the standard

download, but you can find the same encryption on the IE 5.0 download Web site at [www.microsoft.com/ie/ie50/ie50.htm](http://www.microsoft.com/ie/ie50/ie50.htm).

Some ISPs also carry their own standard 128-bit version of the Internet Explorer 5.0.

Oh right! Thanks for the update. However, the statement was true when the article was written. In fact, the statement in the published version—the 128-bit version currently available however the standard 40-bit version still include Internet Explorer 5.0's technology, which allows external customers to (almost) 128-bit transactions with banks and financial institutions around the world—was a direct quote from Microsoft's PR site.

### Where can I buy that damn CD-ROM?

We received a few queries from people who want to locate the correct programming. Mike Lutz, which was reviewed in "Robotic for hands-on programming" by Tom Allen Martin in the April 1995 edition, has done a lot of digging. One week the following response:

Positive products have been one of the editors in that. Price Club, Nelson Book, Computer Book Store and Mountain Eagle all carry these manuals. The Learning Co. took the company over about the time that I wrote the review and it seems some changes have taken place with the head of public relations for The Learning Co. who approached when told you could not find it on the Web site and that they would be voluntarily "leave" the Web master. The Learning Co. has also recently merged with Intel—it may have also merged with the company. We also placed (IE) Canadian sales manager who said that a few of the U.S. distributors might be getting the CD-ROM license.

I also called a computer products distributor that carries both Positive and The Learning Co. products but the person I spoke with could not find it on the distributor's site. This was probably all due to the pending change.

When I placed customer requests for The Learning Co. at 1-800-444-2000 I spoke with a salesperson who said yes they did indeed have the product and could supply for the CD-ROM.

You might expect for more details on the nature of the problem. It's not part of a book, but contains four multimedia discs in total for real-time 3D 3D models in the last. The first is more of a general introduction to programming. Following this is some rough game programs for use. There are also of programming concepts and programming. CA



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Viewing Angle	60°	Approx. 160°	160°	160°
Response Time	16-20 ms	10 ms	5-10 ms	5-10 ms
Benefits	<ul style="list-style-type: none"> <li>• Purely light emission</li> <li>• Excellent viewing angle and contrast</li> <li>• Excellent image clarity</li> </ul>	<ul style="list-style-type: none"> <li>• Wide screen size (16:10)</li> <li>• 100% viewing angle and high contrast ratio</li> <li>• Excellent image clarity</li> </ul>	<ul style="list-style-type: none"> <li>• Wide screen size (16:10)</li> <li>• 100% viewing angle and high contrast ratio</li> <li>• Excellent image clarity</li> </ul>	<ul style="list-style-type: none"> <li>• Wide screen size (16:10)</li> <li>• 100% viewing angle and high contrast ratio</li> <li>• Excellent image clarity</li> </ul>



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# WHAT'S NEW

**Singtel introduces flat-panel touch screen monitors**  
Singtel Technologies, which is best known

for its notebook computers and line of laserwrite printers, has introduced



SCD Touch Screen technology for flat-panel monitors in Canada.

With this cost-blended keyboard-free touch screen technology and the inherently small footprint and compact construction of the flat-panel display, Singtel monitors are well

suited for such things as delivering information on products in service at bank displays, at stores, restaurants, pharmacies and other service industries.

The SCD Touch Screen option is available for Singtel's 12-inch and 15-inch monitors, which range in price from \$400 to \$400. Richard Collette, Canadian division manager for Singtel, says that "this combination of LCD flat panels and the exciting touch screen technology is perfect in applications where space and power are limited." —K.S. Brown Technologies, Tel: 811-161-1616, <http://www.singtel.com>

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### Remond MP3 player arrives

Creative Labs Twin-Techology has entered the portable MP3 player market with the launch of the Creative Remond, a sleek, completely solid state device for playing MP3 audio files.

The Remond comes in a compact, magazine case that weighs a mere 40 g (just under 2.8 oz.) and measures 100 mm (4 in.) x 125 mm (5 in.) x 15 mm (1 in.). It is available with either 32 MB or 64 MB of memory. Creative Labs is pushing the latest model, which provides a full hour of MP3 music at normal compression rates. This is double the amount of memory available on the first generation of MP3 players.

What makes the Remond different from other MP3 players is that it comes with a built-in FM tuner and can also directly record up to four hours of spoken word audio. It also sports a Palm Pilot-like docking station for transferring MP3 files from a computer to the device. It comes with software to create and manage your own MP3 files, and those with a Sound Blaster Live! card can add environmental audio effects to music files. The 64 MB version of the Remond will begin shipping now for a suggested retail price of \$179. The 32 MB version will be available only over the Web for US\$169.99.

Using its Creative Labs' challenge it Diamond Multimedia (one of the first companies to release a commercial portable MP3 player), Diamond has released a Special Edition of its popular MP3000 player, which comes in a transparent test case with 64 MB (instead of 32 MB) of memory and sells for US\$249.99.

Diamond Multimedia has sold an estimated 150,000 of its original 160 players and is reportedly having trouble keeping up with demand. The launch of the Remond and the Special Edition of the Diamond MP3000 suggest that Sony will soon enter the market here when their new MP3 players are released.

**The Special Edition**  
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Continued on page 18

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Continued from page 12

**Beats the desktop in racing title**

The new Volkswagen Beetle has been licensed by Microsoft for inclusion in the new Microsoft Motors racing game developed by Angel Studios. The latest in the Microsoft Motors series of racing software titles (including the previously released Microsoft Motors), Microsoft Motors will feature a range of classic cars such as the Ford Mustang, as well as police cars and the new Beetle.

In the 3D action game, users will take place in a simulated "racing camp" that



includes "year-changing weather" (sunny, rainy, nighttime) and hundreds of pedestrians.\* Microsoft claims the Beetle will be well suited to this realistic virtual urban environment due to its compact size and maneuverability. Microsoft Motors is scheduled for release this month, with a suggested price of \$49.95—\$49. Microsoft.

<http://www.microsoft.com/games/motors>

**WebWasher 2000 launched**

SOFT LARCS (CPI) Utah Valley-Billerica has taken the wraps off a massively updated version of its WebWasher Web browser for Windows. Known as WebWasher 2000, the browser now has a built-in new features, including what is claimed to be the industry's most comprehensive range of off-line filters.

WebWasher has quickly been gaining a head of momentum since the last year, but the arrival of W2000 will make the package more appealing to heavy Web users. This is because the new software has the ability to remove, negate, archive and restore online content from the Web—off-line.

The original idea behind WebWasher was to allow users to log on-line, peruse the pages required, then log off and perform the page content.

This off-line browsing concept has been greatly expanded in W2000, and now includes options to check links, preview a Web site's organizational tree and the ability to print multiple Web pages.

W2000 has a similar user interface to Internet Explorer as well as a host of advanced features not found in IE (or the Netscape browser). This checking facility is perhaps the most interesting, as it allows users to turn devices on and when it warns of a problem, bypasses that link.

In use as allowing users to notify Web masters of the broken link. Bill Squawell says that users can also attempt to find the Web pages that the broken link was supposed to be pointing to.

According to Stuart Patten, a spokesperson for Bill Squawell, WebWasher 2000 supports scheduled downloads (online updates of sets of Web pages), allowing users to schedule their downloads during off-peak

Continued on page 20



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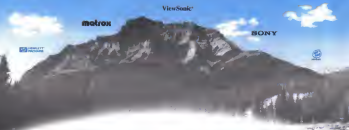


















By  
Basil  
MacDonald

**M**obile computers are the fastest growing segment of the computer market. They currently account for 30 percent of total sales and are expected to reach 50 percent within two years. The market has been driven mainly by a cloning of the technology and price gaps between peripherals and desktops. Portable computing no longer means paying premium dollars for an inferior computing experience.

Also, where peripherals have long been regarded as an important business tool, the ubiquity of this market growth has placed price among individual consumers for robust development. Its technology and price reduction are more important—after all, it's their own money they're spending. According to some industry estimates, approximately

10,000 notebook units were sold to large business in Canada in 1998 while more than 10,000 were sold to home users. IDC Canada, a market research company, reports that notebook computer sales grew 17.4 percent between the third quarter of 1997 and the third quarter of 1998.

"Consumers are more PC savvy," explains Taylor, Hamilton-based marketing manager for IBM Canada. "They have incorporated a PC into their weekly if not daily lives at home and now see the advantage of portability, a mobile as a second PC source of another desktop. They think 'Why not get something I can take from room to room or something that can take to night school. Maybe Mom wants to use it to work on the household budget for a while then take it to play a game.'" That, combined with the price reductions and performance increases are driving the mobile market.

While most portable computers have adhered to the familiar "laptop" design, they have incorporated many if not all, critical features of a desktop computer. The portable

computers are largely distinguished from any other class of mobile machine because they offer the latest CPUs, full-sized keyboards, an accurately proportioned display and connectivity to standard storage and media components (hard drives, floppy drives, CD-ROM drives, and even DVD drives) along to some extent these are standard features. Weight usually falls somewhere between three and four kilograms (six and eight pounds).

However, despite these conventionalities, a surprising array of portable computers exists. They realize this in pursuit of a ideal machine. That's because the expected reality of machines thus competing manufacturers is compounded by the many mobile each individual manufacturer often in an effort to produce a notebook to suit the exact needs of every potential buyer. Ted Clark, vice president

of marketing in Compaq's portable PC division, describes the dilemma faced by manufacturers as a constant struggle to balance affordability with robustness as well as with performance and features (as demonstrated by the triangle chart).

Any change in two of the three elements in this triangle automatically affects one or both of the other elements. For example if you want to make a notebook more affordable you have to make compromises in mobility (i.e., size and weight) or the speed of the CPU or incorporate items of lower capacity features. Likewise, adjustments to size and weight to increase mobility will force the use of smaller, more expensive components or the elimination of some features altogether while still increasing the price.

This is why many portable users lament that they just can't find the ideal notebook despite the many makes and models available. However, common among all manufacturers when dealing with this balancing act is an

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# ...And I think to myself, what a portable world ...



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### What a portable world

Continued from page 26

although in addition the "ultraportable" sub-segment benefits in consumers lured by the scarcity of market competitors.

### Chassis of notebooks

To achieve the goal of providing an ideal portable configuration to meet the demands of different users, manufacturers have in the past divided the portable market into three general categories and product machines tailored to each.

Full-sized notebooks are the most economical but not surprisingly least sophisticated. It should be noted here, however, that in comparison to the machines of only a few years ago this class of portable is very sophisticated indeed.

At price points somewhere between \$1,000 and \$1,500 you will find all major manufacturers offering a portable notebook but with little, perhaps a fraction, of the power and CPU speeds or lower-resolution display smaller hard drive and less RAM than the others. Usually tailored to the home market, entry-level notebooks are often targeted toward multimedia in operations that they will primarily be used to play CD-ROMs, watch CDs, games, or to mail the Internet. More, for example, IBM puts audio CD control on the outside of the case on its ThinkPad 1 series, so even you can pop in an audio CD without having to open the computer case. Compact photo integration Internet access features are some of its ThinkPad models, one for consumer use of use.

There are business-oriented machines at

the entry level but those are usually custom-picked more by the customer directly purchased than the hard drive (between 6.5GB and 10GB instead of 5GB) for example than by individual features.

Next up the ladder are the mid-range tiered mid-range products. The target market for these are SOHO (small office/home office) operators and workers on the road. With price points between \$1,500 and \$3,000 mid-range notebooks will usually have Pentium III (or equivalent to Pentium) CPUs or processors higher capacities all around and larger or higher resolution displays. They are often used to accommodate desktop stations or port expansion sharing devices that you can plug your notebook into to expand connectivity for more and use much when back home or at the office.

An example of where these differences come into play might be seen in a mail client application. An agent can send mail for local delivery with an executive database of properties including photographs then take advantage of the faster CPU and higher resolution graphics to make presentations to clients at site locations. Likewise, a traveling sales agent might transport a variety of multimedia presentations to show potential clients.

At the top of the heap comes the high-end notebook. These are the IBM600 machines you often cloud on too rarely buy. They incorporate the best and latest portable technologies within the weight and dimensions of any other class of notebook. It is here you'll find the latest CPUs, loads of standard and RAM, the most advanced graphics capabilities, highest resolution dis-

plays, the largest available hard drives and ultimately huge displays that are already reaching 15 inches and beyond (qualifying the viewing area of a 15-inch LCD monitor). You'll also find advanced features not usually available on other notebook lines, such as built-in teleconferencing, DVD drives, etc.

### Will all notebooks

be desktop replacements?

Paul Freeman, market development manager at the Internet Product Group (a Web-enabled computing product division) says a trend toward all classes of portable eventually diverging into desktop equivalents. This will be led by developments at the high end of things. "People are more often away from home so the effort and doing different things with their computers as they are increasingly looking for the same level of functionality and power of the desktop but in the portable format. At this point I see lower end notebooks blending with mid-range so we're able to produce more and more functionality at lower price points," he says, adding that this trend will likely continue toward incorporating the high end as well.

Gary McKelrick, vice-president of sales and marketing for HPC Consumer Systems Division, agrees with the gradual blending of entry-level and mid-range machines. However, he doesn't anticipate high-end machines joining in the new future. "If you were to do performance testing, you would find that the overall performance of high-end machines goes drastically beyond the other two and that keeps their own space and doesn't. I would say, however, that we're

very very close today to entering desktop performance with the high-end notebook."

IBM's Taylor however, doesn't envision portables ever replacing desktops. "It's a lot of smaller cases than replacing one," she says. "While higher-end notebooks certainly have similar capabilities to desktops, people generally use just more capabilities with the large monitor and separate keyboard of the desktop and I don't think they're ever want to give that up."

To illustrate to Taylor, today's high-end mobile machines are nearly built by using large technological advances making it possible to create huge capacity hard drives in very small sizes, more importantly CPUs specifically designed for wireless institutions. It was not so long ago that portables of any class were a precursor format to CPU technology (i.e., desktops would be the size with a Pentium II while the best CPU in a notebook would be a Pentium MMX) because of a lag in solving the problems of power consumption and heat dissipation imposed by a portable's sensitive nature. Power consumption, of course, determines battery life while heat dissipation determines reliability (the chip will over heat when where intended to be in a confined space).

But Intel's mobile line recently broke through to drive more and development on chips for portables that coincide with that for desktops at the gap between release of new chip technologies for both kinds of machine is rapidly narrowing. Of course, other chip manufacturers already AMD are following suit with their own notebook-focused engineering. □

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17 inch	17 inch	Vienne Pro 75	0.25 mm	96 KHz
15 inch	15 inch	8 V%	0.25 mm	96 KHz
13 inch	13 inch	6 V%	0.25 mm	96 KHz
11 inch	11 inch	4 V%	0.25 mm	96 KHz
9 inch	9 inch	3 V%	0.25 mm	96 KHz
7 inch	7 inch	2 V%	0.25 mm	96 KHz
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### How to buy a handheld computer

Continued from page 34

To start with, you are likely to be using a handheld computer less for greater variety of situations than you would ever do with a desktop PC or even a notebook computer.

If you have decided to use a handheld with a keyboard, chances are you will want to be able to take it out of your pocket at a moment's notice. Right open and take down a quick note or enter some data. In order to do that, you have to be able to read the screen in a wide variety of lighting conditions. When you are in a dimly lit room, you'll need a backlight, and when used outside, you'll need to be able to adjust the contrast to compensate for the natural light and reflection.

### Battery life

There is no point in having a handheld computer if it is always running low on battery power. Older and less advanced systems you choose will give you at least 10 hours worth of continuous use from either a single charge or the case of a handheld with rechargeable battery (or a single set of batteries, rather you can standard AA batteries).

You may also give some thought to how you expect to be able to use the handheld. Suppose, for example, you are expecting to use the handheld a lot on business and don't have time to learn it changing for extended periods of time. In this case, you should consider a handheld that runs on AA batteries, which are available almost everywhere or plan to buy a second set of rechargeable bat-

teries and always have those in reserve and fully charged.

And for many users, rechargeable batteries are a better option because they are replaceable versus, are cheaper to operate and more environmentally friendly because they don't generate a pile of dead batteries.

### Keyboards

Handhelds in handheld computers are often cramped things. The regular considerable keyboards will not fit on many manufacturers try to create a full QWERTY keyboard in the limited space provided by something that you will want to hold in your hand, but be cautious.

A couple of the most successful recent efforts at creating handheld computer keyboards are from success vendors of the handheld sector: Hewlett-Packard and Palm. HP's new Jornada 410 handheld provides a keyboard that is similar to that in a notebook computer. In fact, as you are likely to find, although some may find it a little cramped, HP's Jornada 410 has a unique "rolling down" approach in the design of its 30 keys. A keyboard to find the maximum possible key layout and make the 30 keys keyboard does, however, sometimes suffers from a "dead space bar" that implies you're in the space bar directly in the center for line input.

### Connectors

Another major issue in buying a handheld is finding out what other you're connected everything in it that you can likely to read. And that includes a modern printer built in

or via a PC Card slot. CompactFlash cards for additional storage, a serial or parallel connection cable for moving data to your desktop or notebook PC, an external power supply (which is automatic an rechargeable unit) and an infrared port for wireless transferring data.

Most of these items are now standard on handhelds, with the exception of the CompactFlash card. It appears to come only on larger handhelds. Although CompactFlash cards are generally not as much other handhelds through the use of a "connector" that allows them to be inserted into a PC Card slot.

### Memory

Get as much as you can. Last year's standard was 1 MB, but look for systems with at least an 10 MB becoming more common in the future. As a rule of thumb, the more memory you have the better. However, since it is only a handheld computer, you don't have to go completely overboard in this area. But if you are running some intensive applications—such as a Web browser—having extra memory can only help.

### Software

All too often the software built into handheld computers is a "one-down" version of a desktop counterpart. But it doesn't have to be that way. Palm is sure of Windows CE handhelds have had to meet the current state in its own handheld, even if it's not the best of Palm's Series 3 systems will keep that rich and powerful

applications can be created for handhelds.

Try out the applications on your handheld before you buy it. They should be easy to use, quick, stable and well designed. If you find them lacking in any of these aspects, put the handheld back. Handheld software is generally hard to come by, so you tend to be stuck with whatever comes with the system when you buy it.

### Construction

The final consideration should not be overlooked. If there is one reason of handheld computers it is that in some parts the handheld will be dropped. The final design is one chosen to that of the construction. However much you drop it or smash it, you should not be able to tell it.

Really, this writer has unfortunately killed many handhelds as they slipped out of pockets or fell from the safety of my hand and can attest to the fact that "tough" is not a word that is used lightly. "Tough" is a perfectly fine word to do a "drop test" in the classroom when you buy your handheld. Put it in case it falls back at how well it appears to be held together before you buy.

### A final word

Handheld computers are now powerful enough to do most of what you can do with a notebook computer. And that means you need to take as much care and attention in choosing one as you would a notebook. If you make the right choice, you can accomplish a lot. This column article, for example was composed on an HP Jornada 410 handheld.

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# Ultraportables offer more computer in less space

By Ben Macdonald

Evernote known as subnotebooks (mini-electronic noteb) like the negative connotations of the "sub" and have changed to "ultra", this specialized class of

notebook is gaining popularity as technology makes more possible within a smaller space at lower cost.

Where rock manufacturers had to use proprietary definitions of what constituted an ultraportable, it can be generally accept-

ed that these are notebooks weighing less than 2.25 kg (5 lb.) and thinner than 2.55 cm (1 1/8 in.) while still sporting a full-sized keyboard and reasonably proportioned display. With prices matching those of mid-range notebooks (\$3,000 to \$4,000), the

advantages of ultraportables are the reduced weight, and size and increased battery life.

Another characteristic, which could be positive or negative depending on your needs, is that these notebooks use contract-size modules that allow choice of position. It is possible, for example, with an ultraportable, to have the floppy or CD-ROM drive, or other media drive, behind as they are often optional or removable. Some ultraportables even have their own docking stations that convert a smaller module into the equivalent of a full-sized, full-function notebook in a matter of minutes. When disconnected from their module equipment, these computers can be employed on the road for any activity that doesn't need a floppy or CD-ROM drive. The negative side to this is that if you are such devices explicitly, constantly having to attach and detach them can be inconvenient.

It used to be the case that this class of portable wouldn't have the latest CPUs and wouldn't have smaller screens and lower capacities (hard drive, RAM, video RAM, etc.) in order to keep the price down and luxury life up. That is often still the case, but the point is somewhat moot since you will find 333 MHz or 300 MHz Pentium II processors and 4 Gb-plus hard drives in these machines.

When the saving of a few pounds and inches may be a benefit, most would disagree, anyone who spends a significant amount of time on the road must think computer will necessarily outweigh the other benefits. Though there is generally compensation to be made in adopting an ultraportable, the travelling professional will have learned through experience that most of the features of a full notebook are rarely if ever called upon while on the road.

Julia Caraccio, vice-president of market for the Institute of Canada, says the ultraportable has a clearly defined niche market. "These [ultraportables] are for the user where size and weight are everything. This points this type to be the laptop people with a minimum compromise in performance to they are necessarily more expensive because we have to pack more technology into that small form factor. People who travel constantly—senior executives, mobile professionals, journalists—anyone who needs their notebook with them all the time knows that a couple of pounds really makes a difference."

It is notable that the market for ultraportables is rapidly expanding in direct response to increased mobility in the population as well as because of technological developments that have made this class of portable more possible. Caraccio explains that one of the greatest barriers to portable ultraportables in the past has been the dependence of heat from the latest processors. However, extensive research and engineering efforts have resulted in ways to channel air in volumes large enough within the confined space to keep even the latest generation happy. □

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# How to buy a portable computer

By David Tomasko

**A**t The Computer Shop, we're often asked for advice on where to buy portable computers. Some of the factors you'll need to consider are the same as those for buying a desktop computer: type and speed of processor, size of hard drive, amount of memory, and price. Providers also have their own unique characteristics, and understanding them is equally important to your buying decision.

Notebook computers are more portable than desktop PCs in their overall "feel" but because of their all-in-one design that feel is difficult to modify. It is, therefore, very important to buy factual info buy.

If you buy a desktop PC and don't like the keyboard, you can replace it for around \$35. If you don't like the screen or the printing device in the way the keyboard feels on your arm, you probably, there's not much you can do about it other

than the fact that you can insert in external monitors, keyboards, etc. But they define the way means for buying a portable. In short, once you've placed your money down, what you're bought is what you'll have in the end. Following are some of the characteristics you should consider.

## Screen

There are two basic types of liquid crystal display (LCD) technology currently being used with portables: active matrix and passive matrix. Active matrix is also sometimes called TFT (thin film transistor).

Of the two, active matrix screens provide the best images. They generally have more contrast, show details of color more readily, respond to rapid changes more quickly and have a wider viewing angle. These latter two points are important for displaying DVD or other multimedia clips or for using the notebook in presentations where most data are projected

looking at the screen. Active matrix screens are also more expensive, adding \$400 or more to the notebook's price tag.

Passive matrix screens are referred to as a number of names: STN (super-twist nematic), DSTN (double-twist STN) or dual scan STN and TN. High-performance addressing of all cells in relation to passive matrix technology. Passive matrix technology has progressed to the point where, under many conditions, passive matrix screens are visually indistinguishable from those using active matrix technology.

Today you can buy a notebook computer with a screen ranging from 12 inches to more than 16 inches (measured diagonally). Range logarithmically rather than linearly, but a factor that counts more than size is display resolution. A 13-inch display that supports 1,024x768 pixel resolution

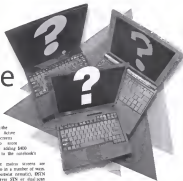
will show more information in a screen than one that supports only 640x480 pixels. Of course the objects on the screen will be smaller, but considering that eventually the closer to a laptop screen that is a screen the higher resolution may still be acceptable.

Another factor is number of colors supported. In color "true" or photorealistic color can be achieved if the graphics adapter will produce 17.4 million separate colors. A graphics adapter that supports 65,000 colors will be adequate for most business applications, such as presentations, but

the best fidelity for photographic images will be achieved by displays that can show photorealistic colors.

## Battery

Batteries manufacturers no longer offer actual runtimes (SAC) batteries, and have moved to either nickel metal hydride (NiMH) or lithium ion-based (Li-ion) batteries. A major limitation with NiCd cells is their susceptibility to memory effects: with constant partial recharging and subsequent complete discharging, the battery slowly loses its capacity. Eventually you will be able to run a notebook for



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# The shape of portable things to come

By Ross Macdonald

Where the recent history of portable PC development has largely been based on the refinement of exist-

ing technology (Celeron had three in a single month, for example), Intel seems to want them into a few technologies being worked on now that will introduce actual new developments to the mobile world.

## Cayoteville

The most impending of these is a CPU with the developers told Cayoteville that Intel expects to be selling before the end of 1999. The details of Cayoteville were described in

February by Robert Isenstein, vice-president of Intel's architecture business group and general manager of the mobile/handheld processor group.

According to Isenstein, the Pentium II-based Cayoteville CPU can currently operate at 300 MHz while the notebook is plugged into the wall but can fall to 400 MHz when on battery power. That 20 percent cut in performance sounds relatively insignificant, but what is significant is that power consumption drops 40 to 50 percent when the chip is operating at the lower speed. By the time Cayoteville hits the market, Isenstein expects its performance to start at 400 MHz and adjust to 300 MHz on battery power with the same order-sized battery life.

Western-Packard Canada Inc.'s mobile computing product division spokesman Paul Patterson says the Cayoteville chip is a significant development for making all classes of notebook perform the desktop replacement. "The Cayoteville chip is really exciting for users because there will be very low of a discrepancy between the stability of peripherals and desktops. It's a significant step in that direction."

NEC Computer Systems Division's vice-president of sales and marketing, Greg Williams, cautions "Cayoteville chips and the Cayoteville technology will substantially improve notebook performance and put it on an equal level to desktops like we've never seen before."

Deeper into the guts of things, Intel recently announced its third Intel Atom (ISA) CPU mounting package, which is 204 cm (1 in.) thick and weighs only 4 g (14 oz.). It's the smallest and lightest packaging option yet for Pentium chips and is expected to support Pentium III chips in the near future. Once it is fully developed for the higher performance CPUs, you can expect to see fully functional Pentium III and beyond chips in smartphones—about the topic of price has yet to be touched.

## The universal notebook

Another equipment that yet to be firmly established trend is for each manufacturer to follow what's called the "universal notebook philosophy" in which each maker's commitments will be common throughout the product line. Things like AC-adapted alternative media drives and features will be compatible with all current and future notebooks so you won't have to buy replacements every time you buy a newer notebook as long as it's from the same manufacturer.

## Common everywhere

Intel(R) further down the road all the more is around Bluetooth technology—the working name of a short-range radio frequency (RF) communication technology being jointly developed by Intel(R), Ericsson, Nokia and 3Com that is expected to revolutionize the way all digital communication are conducted.

Bluetooth was demonstrated in January in March and may start turning the streets within 12 months. Unlike wireless products now expected a few years ago to change the computing and communications worlds but failed to do so, Bluetooth has no two-stage

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# Web surfing in your car project's goal

By Ivan Hladik

PAID AUTO, CASH PAY—There are few prices from which it has been difficult to not subscribe to log onto the Net. The facility we have been one of them—could now that Online Anywhere is installing web systems, this electronic company, Verano Corp., is developing a next-level product designed to access Web programs from an automobile.

The deal calls for Online Anywhere's *Playboy Web* content information product to be used to deliver XMMS-enabled automobile markup language content for in-vehicle software and communications peripherals developed by Verano. The resulting products will operate on a computer running the Microsoft Windows CE operating system-based Auto PC platform.

"While Verano is doing with Auto PC is creating desktop ways to interface Auto PC with the rest of the car system," explains Michael Weinbaum, president and chief executive of Online Anywhere. There was great synergy for Verano's computer/telematics use of the things that we wanted to create an Internet content on the Auto PC—and do it in such a way so that people don't have to use their hands if it can be done through voice."

According to the companies, the deal is all business. This unit is an increasingly looking for "anytime anywhere access to the growing volume of Web-based information and applications and the growing market for automotive computing devices and mobile applications."

One application example cited by the companies is a voice-activated product would be a driver's or passenger's ability to use a personal information manager (PIM) to get driving directions directly from a Web site.

Weinbaum said, "The product itself is going to be a two-piece solution: a XMMS browser that runs on the Auto PC and a server which will be running at a content provider's site. These will be content providers that want to enable their content on the Auto PC."

He continued, "So if retail is an option plan, it could be an Internet kiosk in fact any computer that wants to enable their content on the Auto PC."

"There's going to be a server which takes the existing content that these companies have—it could be an email application, a mail order application, a financial application such as stock quotes—and that gets converted

ed by our Online Anywhere screen into XMMS, and then gets fed to the browser on the car," he said. "And there is some kind of a wireless connection between the two."

James V. Zelenka, president of Verano, says his firm has been involved with Microsoft's Auto PC initiative since late 1996—the first product was the CarFax vehicle telematics system.

Weinbaum explained the wireless connection, saying that will be required to Verano. "You'll see some relationship with a car or which will be providing the data, the connectivity part of it."

Online Anywhere will be providing its Auto server, which the CIO said, "will provide content links to a packaged system that people can buy, but also as a format application. If you are an advertiser or you are an Internet company which does not want to buy space of software and install it in their telematics unit they can just subscribe to the service that Online Anywhere will be finding and they can get installed on Auto PC."

The first products will be appearing in the next quarter, he said, in the form of some test programs.

Online Anywhere has been busy signing deals involving telematics recently just

this month. Two other deals have garnered deals with other car systems. On Commerce Corp. and the other Yahoo Inc.

The first deal, with logging industry to make telematics providers On Commerce Corp. involved the upgrade of its desktop TV content server for local clients. The company said the beta version of the new and improved *Internet* service was recently launched at a number of locations going beyond *Internet* and constructed access in the Internet and offering goods e-mail, shopping, news, sports and educational local information, games and chat.

A week prior to that a deal with Yahoo called for Online Anywhere to upgrade Yahoo content for delivery to PDA and Auto PC Internet appliances. The companies said the Online Anywhere's *Internet* Corp. Verano Anywhere service will connect Verano's own content services, including retail, weather, stock quotes, sports scores, and research information.

Online Anywhere is a telematics Verano-based Web site, and provides a "virtual information solution" designed to allow Web content to be viewed by personal digital assistants (PDAs) and Web, called *Auto PC* or *Auto PC*.

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# Compaq's wild ride

Innovate 99, Compaq's technology showcase, should have been a triumph for the company's chief executive Eckhard Pfeiffer, but instead it became part of a nine-day roller coaster ride that left the company's stock battered and Pfeiffer without a job.

By Joan Garofano

Compaq's Innovate 99 event, held over nearly two years, showcased the company's hot new technology developments. Its expectations were rising high when Innovate 99 opened at the George R. Brown Convention Center in Houston, Tex.—the home of Compaq's corporate headquarters.

The Houston job ended with a stunning upturn, followed by chief executive Eckhard Pfeiffer's abrupt arrival. Pfeiffer unveiled Compaq's new pricing and the close of the two-day conference. Meeting officials.

The industry is a whole lot long anticipated the need to provide solutions for business-to-consumer and maintain a presence in the Web. Compaq has been involved in this movement as well, but the diversification that came with recent acquisitions of Tandem and Digital Equipment Corp. seems to give it the confidence to step out of the park.

"The combination of technology products



Eckhard Pfeiffer, who was introduced as Compaq's current leader, resigned as chief executive in April.

and services, together with strong partnerships, enables us to create value solutions," said Pfeiffer during his keynote address.

During the two days that followed Compaq, and its partners made presentations to an audience of clients, potential clients and journalists about the company's business strategy and the technology, software and services available to help make it a reality. Keynote speeches from Compaq chief executive Craig Barrett and Hewlett-Packard executive Eric Schmidt were both warmly received.

The highlight for all in attendance was Microsoft chief executive Bill Gates' address, which closed Innovate 99. Gates' speech featured key points from his new book, *Business @ the Speed of Thought*, which dealt in part with Compaq's electronic business focus.

While Innovate 99 could be considered a success, the event was overshadowed by news of Compaq's preliminary first-quarter financial results. The announcement, made after the close of the event, markets on Friday, April 9, predicted that Compaq's earnings for this quarter would be 10 percent below analyst expectations. One of the major factors

cited for the poor showing was the move to lower-priced PC hardware in the consumer market: the proliferation of sub-\$1,000 PCs (for example) and the difficulty making money in such an environment.

When the markets opened the following Monday, Compaq's stock took a beating, falling more than 30 percent of its value from \$39.94 a share at Friday's close, to 26 by Monday's close. A few other technology companies were also taking hits—Compaq's dividend rose. Though not hit as severely as Compaq, Dell, IBM, Microsoft and Gateway all suffered dips in their stock prices following Compaq's announcement.

Compaq's board of directors convened on Sat. April 17, and asked for Pfeiffer's resignation. Both Pfeiffer and Bill Maier (before Compaq's chief financial officer) defended their resignations the following day to Compaq.

Compaq's board then turned to office of the chief executive to look after daily operations at the company's headquarters, Houston. In June, one of the co-founders of Compaq, in assuming the role of acting



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# IDC study predicts expansion of online auctions

**HEMLOCK, B.C.**—Online auctions will play an increasingly important role in electronic commerce and spur the growth of computer-powered software solutions and auxiliary services related to e-commerce, a new study claims.

Based on previous studies like this, IDC and Nalox are just the beginning to indicate what's going to be popular in 1999, the International Data Corp. (IDC) study can claim.

"The focused content and consistency of a niche site could drive users away from the broad-based sites or at least from the broader ones to provide deeper content and services within different segments," the study predicts. It cites examples of recently launched niche sites like SportingAuction, Habitat.com, Internet.com, and mortgage.com.

Despite the warnings, IDC says they will be two million registered users and \$247.5-million in revenue for the Auctioneers' Division, or off the company's total, in the online auction market that IDC also predicts that Auction.com, which recently announced plans to launch an auction service, will be one

seller that could threaten eBay's hold on the market.

"Auctions fit the definition of a niche application, something that engages users and keeps them coming back," says IDC. Provide IDC's program manager for Internet and e-commerce strategy.

IDC also expects marked increases in e-commerce software packages with auction modules. Additionally, services, service centers that act as liaisons between online buyers and sellers, and security programs designed specifically for online auctions, at least, will provide the catalyst for a

trend to increase their staffs. Services, services, and services, they are likely to turn to auction software companies to provide the services, according to IDC study.

Consequently, auction software companies may become acquisition targets to the next time IDC publishes, it.

## Company's solid role

Continued from page 61  
that executive used Petitioner's replacement can be found. (Banks? Google and Robert? Ted Nelson with Auto Bank.)

The department of Petitioner's state (subject of Company's) has around a few years (million-dollar) many "billions" Petitioner receive a period of mounting growth in Company's history," stated Bank. "All those who benefited from that growth are in a debt of gratitude."

"we don't run our business on a quarterly basis. The gestation period for the resignation is clearly longer than one quarter."

—Peter Olson, Company Canada

So, why the sudden departure, then?

"The board isn't as engaged a change in leadership, and that should be viewed very positively," said Peter Olson, president and managing director of Company Canada. "Company globally has to be very fast-acting but we don't run our business on a quarterly basis. The gestation period for the resignation is clearly longer than one quarter."

However, Olson stated that the message of Petitioner's resignation (including Company's) board remains unchanged. "That's a company-wide message—that's not changed. But there has been the changing of Company since 1982 and has been extremely active in the history of the company. I don't see any change there. I just see an acceleration in the speed of decision-making and execution." □

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SmarttNet now offers Internet Relaying, simple to use with over 2000 access points in 180+ countries. Please call our office or visit our web site, for information and sign-up. Internet relaying brought to us in partnership with IPNet, <http://www.ipnet.com>

## business handles internet access & hosting

1) modem dial-up & Business Basic web hosting - \$55.00 per month

2) ISDN dial-up & Business Basic web hosting - \$75.00 per month

3) dedicated ISDN + Business Basic web hosting - \$850 / mth (includes BC TEL Minirock charges & router BC TEL set-up charge applies)

4) T1 - Business Advanced or Co-located Server starting @ 1199.00 per. month\*\*†(2)  
†Please call for details

\*limited time offer

\*\*†(2) prices vary by telephone exchange.

\*\*†(3) prices vary by telephone exchange and hosting service.

taxes not included.

## SmarttNet

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604-473-0588 fax

888-467-0527 toll free

<http://www.smartt.com>

SmarttNet/BC TEL Communications are wholly owned subsidiaries of BC systems Inc.

# internet personal accounts

## \$30.00 flat rate/month

includes unlimited hours, 5 email addresses  
20 mb personal web page space

## \$22.50 100 hours/month

includes 5 email addresses - 5mb personal web page space

## \$10.00 15 hours/month

includes 5 email addresses - 1mb personal web page space

## \$25.00 residential ISDN 100 hours/month

includes 5 email addresses - 5mb personal web page space

- no set up fees
- no primetime restrictions
- free software
- free tech support
- win 3.1, 95/98/NT, MacOS + OS2
- free trial period
- free web page space
- free classroom training
- service available in Greater Vancouver, Abbotsford, Kelowna & Victoria.

taxes not included.



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ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
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ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
Logitech PS/2 3 Buttons Mouse  
17" 57cm Monitor Included

Lead Only  
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ASPT 3000/33.3/40MB 40 Win Inland  
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400 144MB Floppy Drive  
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8M 128MB 33.3MHz PCI Sound  
32MB Crystal PCI Sound  
Aspert 56K x 16 PCI Modem  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

\$699

Lead Celeron 499.999  
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**Major Brand**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Disk  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Xeon**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Disk  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Sage 7**  
ASPT 3000/33.3/40MB 40 Win Inland  
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144MB Floppy Drive  
Quantum C2 4.0GB Hard Disk  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

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**AMD K6-III 400**  
\$189

**Intel Pentium-III 450**  
\$369

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Lead Only 17.999  
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**ATI Sport 16 MB AGP**  
Lead Only 17.999  
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**Toshiba Stereo 128MB Speaker**  
Lead Only 17.999  
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**Aspert 933 34M PCI Sound**  
Lead Only 17.999  
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### AMD K6-III 400

ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse  
17" 57cm Monitor  
Aspert 56K x 16 PCI Modem

\$1279

Lead Pentium-III 450  
\$1279

### Intel Pentium-III 450

ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse  
17" 57cm Monitor  
Aspert 56K x 16 PCI Modem

\$1349

Lead Pentium-III 450  
\$1349

### Intel Celeron 300

ASPT 3000/33.3/40MB 40 Win Inland  
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144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse  
17" 57cm Monitor  
Aspert 56K x 16 PCI Modem

\$999

Lead Celeron 300  
\$999

### Rage DVD 400

ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse  
17" 57cm Monitor  
Aspert 56K x 16 PCI Modem

\$1888

Lead Pentium-III 450  
\$1888

### Graphic Oxygen 350

ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse  
17" 57cm Monitor  
Aspert 56K x 16 PCI Modem

\$4699

Lead Pentium-III 450  
\$4699

### Web Server w/1000

ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse  
17" 57cm Monitor  
Aspert 56K x 16 PCI Modem

\$3099

Lead Pentium-III 450  
\$3099

**Major Brand**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Xeon**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Sage 7**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**DVD-ROM**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Printer**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Scanner**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

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ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Video Card**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Video Editing Controller**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
3 Buttons PS/2 Mouse

**Memory and CPU**  
ASPT 3000/33.3/40MB 40 Win Inland  
Office Fast 33.3MHz 128MB Memory  
144MB Floppy Drive  
Quantum C2 4.0GB Hard Drive  
ATI Sport 16 MB AGP  
Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
Multimedia Stereo Speaker  
Windows 95/98 Keyboard  
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Toshiba Stereo 128MB Speaker  
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Toshiba Stereo 128MB Speaker  
Aspert 933 34M PCI Sound  
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3 Buttons PS/2 Mouse







# Genesis GraphicStations

Configure your own at [www.qproducts.com](http://www.qproducts.com)!

GENESIS

## GENESIS GX

- 386SX 33MHz Processor
- 4MB DRAM (Standard) 4MB
- 5MB 20MB, 30MB, 40MB
- 4.42 Turbo Mode/40MHz
- Control Unit 20, 30, 40MB
- Two Integrated Software Cards
- Automatic Screen Saver
- Turnkey 10" Monitor
- 20/30/40 Mega-Bits/sec
- 17" Screen from \$299.95
- 5 Year Full Warranty
- 52/60MHz Super Drive
- 17" Screen or 15" or 14" Flat
- Mouse/Keyboard II
- 1 Year Local Warranty

**\$1499**  
Includes 17" monitor

## GENESIS GX

- 386SX 33MHz Processor
- 4MB DRAM (Standard) 4MB
- 5MB 20MB, 30MB, 40MB
- 4.42 Turbo Mode/40MHz
- Control Unit 20, 30, 40MB
- Two Integrated Software Cards
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- Turnkey 10" Monitor
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- 17" Screen from \$299.95
- 5 Year Full Warranty
- 52/60MHz Super Drive
- 17" Screen or 15" or 14" Flat
- Mouse/Keyboard II
- 1 Year Local Warranty

**\$1627**  
Includes 17" monitor

## GENESIS GX

- 386SX 33MHz Processor
- 4MB DRAM (Standard) 4MB
- 5MB 20MB, 30MB, 40MB
- 4.42 Turbo Mode/40MHz
- Control Unit 20, 30, 40MB
- Two Integrated Software Cards
- Automatic Screen Saver
- Turnkey 10" Monitor
- 20/30/40 Mega-Bits/sec
- 17" Screen from \$299.95
- 5 Year Full Warranty
- 52/60MHz Super Drive
- 17" Screen or 15" or 14" Flat
- Mouse/Keyboard II
- 1 Year Local Warranty

**\$1777**  
Includes 17" monitor

## GENESIS GX

- 386SX 33MHz Processor
- 4MB DRAM (Standard) 4MB
- 5MB 20MB, 30MB, 40MB
- 4.42 Turbo Mode/40MHz
- Control Unit 20, 30, 40MB
- Two Integrated Software Cards
- Automatic Screen Saver
- Turnkey 10" Monitor
- 20/30/40 Mega-Bits/sec
- 17" Screen from \$299.95
- 5 Year Full Warranty
- 52/60MHz Super Drive
- 17" Screen or 15" or 14" Flat
- Mouse/Keyboard II
- 1 Year Local Warranty

**\$2097**  
Includes 17" monitor

## GENESIS GX

- 386SX 33MHz Processor
- 4MB DRAM (Standard) 4MB
- 5MB 20MB, 30MB, 40MB
- 4.42 Turbo Mode/40MHz
- Control Unit 20, 30, 40MB
- Two Integrated Software Cards
- Automatic Screen Saver
- Turnkey 10" Monitor
- 20/30/40 Mega-Bits/sec
- 17" Screen from \$299.95
- 5 Year Full Warranty
- 52/60MHz Super Drive
- 17" Screen or 15" or 14" Flat
- Mouse/Keyboard II
- 1 Year Local Warranty

**\$2347**  
Includes 17" monitor

## GENESIS GX

- 386SX 33MHz Processor
- 4MB DRAM (Standard) 4MB
- 5MB 20MB, 30MB, 40MB
- 4.42 Turbo Mode/40MHz
- Control Unit 20, 30, 40MB
- Two Integrated Software Cards
- Automatic Screen Saver
- Turnkey 10" Monitor
- 20/30/40 Mega-Bits/sec
- 17" Screen from \$299.95
- 5 Year Full Warranty
- 52/60MHz Super Drive
- 17" Screen or 15" or 14" Flat
- Mouse/Keyboard II
- 1 Year Local Warranty

**\$2347**  
Includes 17" monitor

## SCRYPTS 486SX

- 486SX 33MHz Processor
- 5.17" Active Matrix Color Display
- 40MBps for 40MB 100/200
- 4MB 20MB Memory
- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200
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- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200

**\$2499**  
Includes 17" monitor

## SCRYPTS 486SX

- 486SX 33MHz Processor
- 5.17" Active Matrix Color Display
- 40MBps for 40MB 100/200
- 4MB 20MB Memory
- 40MBps for 40MB 100/200
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**\$2499**  
Includes 17" monitor

## SCRYPTS 486SX

- 486SX 33MHz Processor
- 5.17" Active Matrix Color Display
- 40MBps for 40MB 100/200
- 4MB 20MB Memory
- 40MBps for 40MB 100/200
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**\$2499**  
Includes 17" monitor

## SCRYPTS 486SX

- 486SX 33MHz Processor
- 5.17" Active Matrix Color Display
- 40MBps for 40MB 100/200
- 4MB 20MB Memory
- 40MBps for 40MB 100/200
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- 40MBps for 40MB 100/200
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- 40MBps for 40MB 100/200
- 40MBps for 40MB 100/200

**\$2499**  
Includes 17" monitor



Didn't see exactly what you were looking for? Customize your own notebook or desktop at [www.qproducts.com](http://www.qproducts.com)!

## PARTS & UPGRADES



Quantum Office Products Inc.

### Processors

386SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249

### Memory Modules

4MB DRAM (Standard)	\$14
5MB 20MB, 30MB, 40MB	\$14
4.42 Turbo Mode/40MHz	\$14

### Start Kits

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249

### Input Devices

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249

### Case

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249

### Monitors

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249

### Monitors

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
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### Monitors

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
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### Monitors

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249

### ICam Kits & Supplies

486SX 33MHz Processor	\$149
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249

### ICam Kits & Supplies

486SX 33MHz Processor	\$149
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486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249
486SX 33MHz Processor	\$249



## Quantum Office Products Inc.

200 S. 10th St. (North of Highway 100) - Minneapolis, MN 55401

Telephone (800) 244-5852 Fax (800) 244-5853 Toll Free (800) 825-1181 <http://www.qproducts.com>







**Power up!**

Continued from page 46  
and full of power, and this one is no exception. With the power Precision II onboard, it's up through the bootstrapping tests, running in the top score overall. Also armed with great audio and video capabilities and a CD burner on top of the DVD drive, it's a machine well-suited to high-power multimedia and gaming. The inclusion of a pretty good management software bundle also merits points. Overall, another killer option from Sarnat Machine.

## 370 Computer 500E

Estimated street price: \$3,000

http://www.370.com

**Software**

- Windows 95
- Microsoft Word (Works 4.0 Word 97) Smart Graphics 3D Money 4.0 Basic Graphics Studio Graphics 10, Super Site Monitor PC

Call or e-mail, check 2000PC '98 computer

- Games like Super 3D and Microsoft Games Pack or 3D-Lite

**Components**

- 300 MHz Pentium III processor
- At 333 MHz, the best drive is a bit slower than some of the others this month, but still offers a lot of space for the majority of users
- The laptop keyboard is not built with a keypad with the extra security (You can use the standard keyboard and save 25%)
- 40 megabyte hard drive
- 333 MHz Pentium III processor

**Media/Video**

- The 370 500E Page 100 video with 32 MB of memory (8-Meg and 16-Meg) video, and DVD hardware (which is built right into the main unit)
- In addition to the 370 Power 500 drive, the 370 also has a Pentium III 333 MHz processor, is ready for building up data, and
- The second unit is a 370 500E (not the 370

one more with the Cambridge Touchscreen PC 370 500E (which is not a 370 500E) is also available (it's not a 370 500E)

**Responsibility**

- The 370 500E has PCI cards, or use the 370 500E and the 370 500E (which is not a 370 500E) is also available
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E

For a system that is already packed with high-performance components (the 370 500E is comparable to its responsibility). The 370 500E is a very full (which may be a problem for users with limited space) and has plenty of space for installing additional components. There should probably be included with all of the items already included. However, there's both DVD drive and a CD burner, great audio and video components, and the 370 500E currently available. The 370 500E is a really interesting option for those interested about owning their system, but it can be broken out of the package to save a few dollars.

## Supercam Touch

Estimated street price: \$2,200

http://www.supercam.com

**Software**

- Windows 95
- Linux Smart Suite Windows Edition (which is not a 370 500E)

**Components**

- 300 MHz Pentium III processor
- At 333 MHz, the 370 500E (which is not a 370 500E) is also available (it's not a 370 500E)
- The 370 500E is the only one this month to offer a 333 MHz drive (which is not a 370 500E) is also available (it's not a 370 500E)
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E

**Media/Video**

- In addition to the 370 500E, the 370 500E is also available (it's not a 370 500E) is also available (it's not a 370 500E)
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E

**Responsibility**

- The 370 500E is the only one this month to offer a 333 MHz drive (which is not a 370 500E) is also available (it's not a 370 500E)
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E



Although the price of 1/2 unit is a bit disappointing, this is really a low-cost system with lots of built-in space for high-capacity removable storage, a pretty powerful, built-in DVD and CD burner, and great audio and video output.

again. The machine scored in a great benchmarking performance, too. This unit is definitely a great buy for power users.

## Ultimate Power Cruncher Package #3

Estimated street price: \$2,475

http://www.ultimate.com

**Software**

- Windows 95
- Corel WordPerfect Suite 8, and a CD-ROM collection of 100 other feature-rich games and utilities.

**Components**

- 300 MHz Pentium III processor
- At 333 MHz, the best drive is a bit slower than some of the others this month, but still offers a lot of space for the majority of users
- The 370 500E is the only one this month to offer a 333 MHz drive (which is not a 370 500E) is also available (it's not a 370 500E)
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E

**Media/Video**

- The 370 500E is the only one this month to offer a 333 MHz drive (which is not a 370 500E) is also available (it's not a 370 500E)
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E

**Responsibility**

- The 370 500E is the only one this month to offer a 333 MHz drive (which is not a 370 500E) is also available (it's not a 370 500E)
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E
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- There are three units (a 370 500E and the 370 500E) that are not a 370 500E



Ultimate's system that much packs a punch, with great benchmarking performance and good components for a very reasonable price. The package is the best currently available, the audio component is

great. The choice of video cards gives users three options. Ultimate also allows users to configure systems to their needs, by adding their PTO system located on their Web site. Ultimate also offers a 370 500E (which is not a 370 500E) is also available (it's not a 370 500E)

## White Knight Armory A555E

Estimated street price: \$2,475

http://www.whiteknight.com

**Software**

- Windows 95
- Softwin Suite 8, and a CD-ROM collection of 100 other feature-rich games and utilities.

**Components**

- 300 MHz Pentium III processor
- At 333 MHz, the best drive is a bit slower than some of the others this month, but still offers a lot of space for the majority of users
- The 370 500E is the only one this month to offer a 333 MHz drive (which is not a 370 500E) is also available (it's not a 370 500E)
- There are three units (a 370 500E and the 370 500E) that are not a 370 500E

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# IBM ships WinCE WorkPad

**WATKINS, N.Y. (ENR)**—IBM announced plans to ship a Microsoft Windows CE version of its WinCE WorkPad PC companion line. The new WinCE WorkPad 400 handheld device will make it easier for mobile users to gain quick, easy access to email, the Internet and other information from outside of the office.

The WinCE WorkPad 400, selling for about \$1,000, is designed to be used as an extension to the desktop. It is targeted for users who want instant-on access to Web-based applications, Internet and e-mail connectivity in a lightweight, small device with a battery life that is measured in days rather than hours.

Like most of IBM's products, the 400 targets respondents that want an inexpensive, straightforward way to keep mobile employees in touch without spending for a full-sized laptop.

"It is really meant for the person who has a desktop at the office and wants mobile capabilities when they're traveling, but doesn't really need a full Windows workstation," said Howard Dilling, IBM's program manager at the WinCE WorkPad division.

IBM's WinCE WorkPad 400 is designed to make notes for students, and create agendas or check lists for people who need to take quick notes on the fly, read and receive e-mail from remote places and perform status tasks within a job or client database.

The 400 is available as the first IBM WorkPad that is not based on the iSeries Palm operating system. The 400 runs

Microsoft Windows CE (handheld PC Pro Edition) instead.

"One nice feature is it allows it to connect to PC companion devices," remarked Arden Bencher, general manager of IBM Mobile Computing.

The additional power and Windows CE are used to run Web-based applications to check credit and extensions, manage contact information and documents and access the Internet.

The WinCE WorkPad 400 can receive e-mail and store information from both desktop PCs and servers, as well as LANs, IBM notes. Using the provided IBM Mobile Connect e-mail application and IBM Global Network data software, users can participate with Lotus Notes Domino or Microsoft Exchange servers from the road or away from the office network.

During travel, said Dilling, in unusual circumstances, users can download the data on an 800-hour flight eight hours, but users cannot use it—such as in meetings or on short rest stops—like the battery is more typically good for days of standby use between charges. An optional optional-100 battery can bring the standby battery life up to 10 hours, IBM says.

The device is only 3.3 cm (1 1/4 in.) thick, and has a keyboard that is only slightly



small, or then there are not even. The WinCE WorkPad 400. The 4.1 inch screen with

640x480 VGA resolution is adequate for viewing Web pages, e-mails, spreadsheets and other documents.

The 400 runs a NEC MIP-III 16-bit processor and comes with 16 MB of total available to 48 MB. It also has 32 MB of ROM loaded with the CE operating system making it an instant-on device. It includes an integrated 31.5 kHz processor, real-time, VGA colorized port, graphics, microphone and infrared port for wireless transfer of data between desktop PCs and other mobile devices. □

[ibm.ibm.com/ibm.com](http://ibm.ibm.com/ibm.com)

## Mobile devices to pass portable PCs, forecast says

**MOUNTAIN VIEW, Calif.** (ENR)—As more people in the next three years, the market for mobile information appliances will surpass workstations and shipments of notebook computers, according to a forecast by Mobile Insights (MI). In the forecast, released in early May, the market-leading firm says Palm Computing's success with connected organizers and the growth of wireless communications will together spur the change.

Mobile Insights market analysis says handheld PCs (HPCs) will play a leading role in five categories. The firm says mobile sales growth of HPCs is consistent growth.

"In the mobile information appliances market will enjoy exponential growth over the next five years, with annual worldwide sales exceeding 10 million units by the end of 2002," said MI analyst David Hughes.

MI also sees that in category of mobile information appliances not to HPCs. Rather, it includes all handheld devices that have a computer system and some sort of data communication. This definition, explains the strategy firm, encompasses organizers like the Palm system, and even a PC running Windows CE in just about any two-way network and capable device, such as a two-way pager.

HPCs make up a large subcategory of appliances. The firm notes that more than three million Palm devices have been sold, and now Microsoft's Windows CE operating system is expanding the market further. While CE has not captured much market share, Microsoft has hoped deals with major original equipment manufacturers like Hewlett-Packard, Compaq, and Cisco, to offer CE devices in developing fast.

At Microsoft CE, Hughes said, handheld market share will be a new level of development of products for that platform, says MI, and eventually take the lead. However, says MI, in fact, for the time being, Palm Computing leads in the HPC market segment and can be expected to continue to develop that platform.

Maybe calls wireless communications technology "the catalyst fueling the growth" and the data applications that will drive the HPC market forward.

Calling SmartPhones a "relatively new category of mobile information appliances," MI predicts they will, in a year or two from now, play a pivotal role in growing the market through its already announced deals with mobile phone makers Motorola, Microsoft and Nokia. Hughes says it expects to sell 10 million SmartPhones over the next five years, starting with the just-announced Microsoft SmartPhone and a few others that will start to appear early 2001 year.

The research also says that Microsoft has plans to build a SmartPhone in the near future. However, its first offering has been the Windows-based joint venture with Qualcomm, a server solution that handles play. □

[ibm.ibm.com/mi/mi.com](http://ibm.ibm.com/mi/mi.com)

## Five percent of Canadians choose wireless/wireline bundles

**TORONTO (ENR)**—Five percent of Canadians are using bundles of wireless and wireline telephone services in the first year such services have been available, according to a nationwide survey conducted last consulting firm Enr & King LLC.

The survey also found that average spending on both wireless and wireline services has fallen in the past year, and a full

third of Canadians would consider giving up their wireline phones for a wireless alternative.

Enr & King's first survey has revealed that the survey of 1,000 adult Canadians by telephone in February on behalf of Enr & King. The consulting firm said the sample gives 94 percent certainty that the results are accurate within 2.4 percentage points.

A third of those who responded to the

survey said they would consider giving up their wireline phones for a wireless alternative.

When an agent likely that users to consider this option, and people with higher incomes are more likely to do so, the survey found.

Twenty-seven percent of the respondents said they currently had access to a package including both wireless and wireline services. Fourteen percent of those people, or five percent of all respondents, are actually using such packages today. Enr & King said this is a significant milestone that such packages are now available last year.

The most popular bundle is Enr offered by Bell Canada and its wireless unit or Bell Mobility accounting for 14 percent and 10 percent of package subscriptions respectively.

Currently just four percent of Canadians say they are interested in the Internet access. Another 24 percent say they are likely to drop their access in the next year and 11 percent say they are not likely to use wireless Internet access.

The survey found that the average wireless subscriber's spending, including long-distance charges, is \$41 per month down from \$47 per month in 1999. Average spending on wired services is \$40 a month, down from \$43 last year.

Enr & King said the wireless market is shifting from a focus on "road warriors" to average people who do not use the services as frequently. □

Enr & King, [www.enr.com](http://www.enr.com)

## New PC-to-TV, MP3 options for Macs

**WILMINGTON, Mass.** (ENR)—Two new products targeting Macintosh and Apple PowerPC users in the PC-to-TV and MP3 music playback areas are just about ready to hit the consumer market. Media streaming company RealNetworks and online content company RealMedia Networks both announced plans in early May to launch products designed for Mac computers.

Previously, Macintosh PowerPC and it will target desktop in fact the only PC-to-TV solutions designed for Apple Mac computers. Called iMovie and iPhoto Gold, the solutions let users display computer video from their Macs on any television. The iMovie will be sold as a small price of \$29.99, Enr says. The iPhoto Gold, which includes an enhanced remote control, will be priced at \$24.99.

RealNetwork's product manager at Enr, said the company decided to develop a PC-to-TV product for Mac users because they are a strong demand for it. "Consumers have been looking for an easy way to connect their Mac computers into the electronic ecosystem. iMovie now makes this a possibility," he said.

The company is looking to raise \$20 million to \$24 million in 2000 in revenue from the iMovie product, said Greg Palmer, marketing manager at Enr. Mac users make up about 20 percent to 30 percent of its customer base, Palmer said.

RealNetworks also had good news for Mac users. With the announcement of an upgrade of its RealPlayer CE software for Mac users, RealPlayer CE software advanced multimedia content, with synchronized navigation language and also has RealPlayer features like RealPlayer's playback and features, the company said. The upgrade can be found at the RealNetworks Web site. □

[RealNetworks: http://www.realnetworks.com](http://www.realnetworks.com)











doi:10.1371/journal.pone.0141444.g002

**Super Buy**

941T5000A Subwoofer/Speakers	\$159
Altus 40.1 Subwoofer/Speakers	\$106
Panasonic/Toshiba 5x DVD3	\$179
40x LiteOn UDMA CD-ROM	\$59
Panasonic 75428 CD Writer Inc	\$115

2000 2001

**P3-450** **2375** **MSRP**  
**P3-500** **2990**

**Asus P3B Motherboard**  
 234MB SDRAM 1GB AGP

**Standard ATXPS 10ATX 1188 40Pin**  
 104 750MHz AGP 4 12000 Drive

**Standard SVGA controller**  
 (Sound Blaster Live max)

**Atrox 400 1.5 Success for Speakers**  
**AG External mouse 1.5 External CD**

Configurations are customized. Lessons & Modules are available. Home Based Learning is also available.



Estimated A. Mouton	
Western Kopylov (1982) (Kopylov)	49-50
Arctic (1974-76) (Kopylov)	52
Arctic (Kopylov)	53
Arctic/Natural (Kopylov)	54
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84 Cable / 4000 Cable	\$179
Power Supply / Power Bar	\$6.95
PS/2 Cable with 3 Pin / 1 Connector	\$14.95 \$12.95
Internal or Cable for Monitor / Keyboard	\$19.95
Serial / RS-232 Cable	\$19.95

[illegible][illegible]

Power Supply AT 200W	100
Power Supply AT 250W (500W)	150
Power Supply AT 300W	200
Power Supply AT 350W	250
Power Supply AT 400W	300
Power Supply AT 450W	350
Power Supply AT 500W	400
Power Supply AT 550W	450
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Power Supply AT 6600W	650



filling on servers and sending them dynamically created HTML web pages to your browser (see [www.mozilla.com](#)), with a great cross-platform portability, can also be used to develop applications run directly on any PC or client browser. With new HTML and cache engines running 30 times faster than current WebPage makers, with its even more exciting that several Java applets, running in your Web browser.

In fact, both Java and Visual Basic have come to the fore as programming languages because they were built to fit the mold for new system development, with rapid development through visual IDEs and component-based, GUI-like to most of the user programming requirements, especially for Web

Perhaps even more important are the CO methods and components like code, which are used alone or be linked to existing programs and their sources as a means of ways including several downstream applications, application server or Web applied. It is this versatility to deployment that makes both languages so attractive.

Once the real focus is in place, the job description in programming languages should adjust. The situation has proven to lay on character and a not processing, not want not being well served. But the current balance of comprehensive APL rapid development for a variety of deployment models and competitive runtime performance makes Java and Visual Basic compelling choices for many business applications.

Support programming languages to gain true benefits like specialists they serve well. Paying well earns LSP rewards for AI. Features for intensive engineering-economic analysis systems: PRO++ for commercial software development. Edited for instruction processing, and most notably Java and Visual Basic leading the way on the new Web-based computer-based systems that act as tools and directly view, control, teach others and assist.

On the surface, Java and Visual Basic share some common and compelling characteristics. Both are comparatively easy to learn and to begin developing useful, small programs with. Due to their approachability, it wouldn't be hard to say your computerless Auntie Mame likes both. And she'd be darned, wouldn't she? Indeed if you can't find what you need directly in the language, both have a wealth of third-party tools, utilities and components available to complete that application.

Finally, look for languages having the critical advantage of many models of deployment: Java or Visual Basic code can stand alone, be hosted on an application or a target system, or act as server-side handlers between legacy systems, data sources, and PCs and/or Web browser clients. This is why Java and Visual Basic should emerge as the dominant programming languages over the next five to 10 years.

However, there are three major differences between the two languages. First, as noted previously, Java has been built from the ground up as an OSG language while Visual Basic is probably requiring complex OSG equidelines. Second, Java has a number of security and reliability features (such as security model, strong typing, garbage memory model, integrity checking, etc.) built into the language design.

But the idea of a novel perhaps the critical of literature is a lost cause in contemporary—

may do just about any combination of hard ware and operating system—while Visual Basic is master of Windows. VB runs on Windows 3x, VB partly on higher versions of DOS if for some reason the NT 3.11, and OS (partly). However, Visual Basic no longer supports Windows 3.1, which has a flaw.

On the other hand, Visual Basic has become the language of choice for Windows applications. This is important because most systems will be built directly into key applications such as Adobe® Acrobat Writer, Prolog 3.0, SAP® Web and thousands of other major business applications.

If we compare Java and Visual Basic in detail, there are three major criteria we can use. The first is ease of development. It is here that Visual Basic would appear to have an advantage. After all it is basic. However, like Java, Visual Basic has many, and in-

large APIs. While selling is hard, in order to accommodate new GUI and other functionality Visual Basic has had to expand its basic syntax by dozens of constructs. In some ways, the documentation in Visual Basic has deteriorated with recent releases. Explanations of constructs are spread over three huge, manually-generated volumes of which only more than 5000 Quick examples of how to use Visual Basic's numerous constructs and functions are included (<http://www.microsoft.com/pressrel/presskit/visualbasic/visualbasic.htm>).

Java is only slightly better. Unfortunately, Java's huge API is organized into complex, haphazard references. But the Visual Basic, more than to look in a third parties for documentation with quick examples of Java code. The fundamental problem is that although developers of both languages have worked hard to make them easy to understand and learn, the other one is

scope of the responsibility shall then be fixed by the competent authority.

**Keywords:** child sexual abuse; disclosure; social support

Traditionally programming languages have had very good records of stability and reliability for built, development systems and its program-code they produce. However, in the rush to get newer versions and features out the door, both Java and Visual Basic have broken this tradition.

Part of that may be inevitable. Rapid changes in WebKit and programming standards mean some code and APIs become obsolete as for example when many Adobe Windows Flexion (WFF) clients were quickly superseded by the new event-driven class and using CSS components and layouts in Visual Basic, a similar pattern has seen two or three data access methods proliferate to

**Figure 1**

## Java vs. Visual Basic

# Java vs. Visual Basic: A comparison

Legend  
■ Good  
■ Fair  
■ Weak

## Characteristics

Number of people who can develop

Representability

Documentation

Availability of tools,  
libraries, resources, etc.

Flexibility and mobility

Major weaknesses

Performance

Security

Overall reliability

Speed of development

Platform

Visual development

Debugging/testing

Project size

Other

Future release status

Cross-platform

Development expense

Speed

Acc to the facts

## Java

■ May not fit casual developers' needs  
■ Lots of examples and help

■ OO commands/requirements are complex  
■ JAWEDB does not easily translate  
■ Text editors and browser needed to run  
■ OO design takes some extra effort  
■ Even bigger API to master  
■ Mixed quality of written materials  
■ Lots of IDE, reference documents

■ Lots of obscure and difficult  
■ Big in catalogs and universities  
■ Not following any  
■ Consistent, end-to-end change is abundant  
■ Numerous, non-encyclopedia  
■ Rapidly changing classes  
■ Huge API is bigger than Visual Basic's

■ Current hypertext handling  
■ Most Java IDEs  
■ Features apps become obsolete  
■ Technical training is required  
■ Visual programming is required  
■ Not following any  
■ Consistent, end-to-end change is abundant  
■ Numerous, non-encyclopedia  
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■ Consistent, end-to-end change is abundant  
■ Numerous, non-encyclopedia  
■ Rapidly changing classes  
■ Huge API is bigger than Visual Basic's

## Visual Basic

■ Easy to get started (download and install)  
■ Lots of examples and help

■ 200-line commands/requirements are intuitive  
■ Can do virtually anything with quality  
■ IDEs are available in many products  
■ Learning takes only 1-200  
■ Huge API to master  
■ pretty well-defined, straightforward, consistent

■ Well-known docs and help  
■ Lots of IDE, user manuals  
■ Microsoft and other leading companies available  
■ Detailed catalogs in catalogs/universities  
■ Consistent and rapid change is standard  
■ Numerous, non-encyclopedia  
■ Just starting to move to OO technology  
■ Many's bugs in new features  
■ Data access consistent in most  
■ Appropriate updates available in IDEs  
■ Great use of Windows API's  
■ Good use in direct memory changes

■ Not following any  
■ Not following any  
■ Consistent, end-to-end change is standard  
■ Numerous, non-encyclopedia  
■ Just starting to move to OO technology  
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■ Good use in direct memory changes

200

VBS report language for Windows

# Going digital with Advantix negs

by Dave Townsend

Although Advantix's otherwise known as Advantix Photo System (APS)—film was originally designed to make photography easier for amateur photographers, its features also make it a better for more advanced shortcomings. They not only offer excellent faster loading time, extra information recorded instantaneously on the film, and on-the-fly selection between three different aspect ratios; you just a few of its benefits. It's almost like combining the resolution and range of film with the flexibility of digital imaging.

## AP 340 Film Drive

1000 1000x

1000 1000x

System requirements: Windows 95/98

Suggested retail price: \$449

In perhaps it should come as no surprise that Kodak has introduced the Film Drive 300, an APS film scanner like APS 340, is professional for consumers while also being useful for more advanced users combining the benefits of digital and analog.

## Kodak's APS scanner bridges film, digital photography



### Easy setup

Film is shown other consumer-oriented PC gauges. First, loading the Film Drive is just a matter of connecting it to an ICF parallel port library (loading any other parallel drivers). If you're not playing it in, then



With the Film Drive is not the most flexible film scanner on the market—it only scans APS film—it's the simplest and cheapest I've seen to date. A lightweight 200 g (20 oz.) the Film Drive is a white plastic box about twice the volume of an external CD drive. Half of that volume is empty, as the entire back half is used for cooling vents.

installing the software. Specifically, the setup program will try to provide the most flexible from the bottom of the Film Drive. From Kodak's website, you can find the Film Drive software with some of the hardware.

The Film Drive is also one of those consumer-oriented PC gauges that has no all-in-one, which is an interesting source of information for the Kodak Film Drive. I had four problems on my mind which are not for maybe 15 minutes a day, and yet an average on, even if the computer is off. Is it a power cord really such a bad thing?

Fortunately, there's one really complex about the hardware. First, to fit into the Film Drive is as easy to load as an APS camera pop open the door, slide in a processed or partially processed film cartridge, and close the door. Once the Film Drive (TM) film drive has been scanned, the same software scans the cartridge and presents thumbnail images. On a 100-MHz Pentium and up, it took just under one minute to scan a 15-exposure cartridge and generate the pictures.

### Performance and usability

First thing, you can get an answer: the image is yours to download. This is

Continued on page 54

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# Gutenberg disc rich but raw resource

By Kath Schlegel Roberts

Looking for a quote from a play of Shakespeare? Need a theorem to help you add the right "type" in that new paper? Want to show your kids what it was like to run the Moon landings, or maybe just looking for a fun read of some classic book? You'll find all that and more on this CD-ROM from Walnut Creek. It contains the full content of Project Gutenberg, which distributes thousands of electronic texts (e-books) that are now in public domain. It is a good idea for students who are looking for new research material, though it is best suited for those people who have time and the access to the Internet.

## Project Gutenberg CD-ROM

From Walnut Creek CD-ROM  
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Having encyclopedias and all other media in electronic format is nothing new, but the generation of them all has to be Project Gutenberg. It was started back in December 1971

when three students Michael Hart typed the text of the American Declaration of Independence into his university's mainframe computer system, and made it freely available to anybody who had access to the Internet. Thus Project Gutenberg was born with the goal of distributing e-books of public domain material to whoever wanted it.

Since that 1,000 public domain e-books have been made available through Project Gutenberg, the site now comprises nearly a dozen classics like Mark Twain's *The Adventures of Tom Sawyer*, John Milton's *Paradise Lost*, but it includes such things as the CIA World Factbook, the King James Version of the Bible, the Shogun Code, and the text of famous speeches by the American Lincoln and John F. Kennedy. The site also includes motion pictures, sequences and still photos of the Apollo 11 lunar landing.

All of this is on the Project Gutenberg CD-ROM in plain ASCII format, making this collection of texts easy to use on virtually any computer. You can use the Mac OS, DOS, Windows 3.1, HTML or RTT viewer supplied with the disc to search for particular files, then input the text of a file into your word processor of choice.

It sounds great, but this CD-ROM is a little bit too basic to do much more than search. The real drawback is the viewer supplied with the disc. All it really allows you to do is to browse between selections and then copy the contents of the file you want to another program. It does not include a search engine that would make it simple for you to search for a given phrase or word in the file. So in effect, you have to know what you are looking for in order to find it. A

direct search engine would make this a superior product, but it lacks significantly more in value as a search tool.

It should also be pointed out that all of these items can be found online at the Project Gutenberg Website (<http://www.gutenberg.org>).

What this disc does besides everything that can be found online is a single convenient package. If you do not have access to the Internet, or don't want to set up reliable hard drive space downloading e-books, this CD-ROM may be for you.

Since Project Gutenberg is an ongoing effort, Walnut Creek offers updates twice a year for an annual subscription for \$9.95 (see look in e-business on a look-in to the original tools, but the Project Gutenberg CD-ROM takes up a lot of space. □

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[illegible]

The image enhancement features are simple and straightforward. You can adjust brightness, increase red, green, and blue levels. It certainly won't give Adobe Photoshop a run for its money, but the key issue here is to enhance the image based on the camera

film negative. It is a concept where I get back aspects of my emphasis on research: the photo looked like it of a greater concept that research looked like it was one solid color. What I wanted the photo on my laptop, and amount of image enhancement would have brought out the vibrant patterns and colors in the material. By adjusting the colors from the film like some software, I was able to bring them out easily. Although the film dates August 29-30 color compared to the 35 film color on every Saturday. The film

There is one hitch, though. The person is subject to an unbreakable spell and he

order to show the original and modified images I would have appended the video to each of the 10 trials rather than the details.

Once you've finished your pre-processing twiddling, it's time to scan and transfer the frame. Again, that's simple but a bit tedious. You're given the option to scan at low, medium or high resolutions (300, 600 and 2400 dots per inch respectively) and the same software tells you how that resolution translates—how only based on the software, that is, regardless of how you've decided to crop the image, all you see is that high resolution gives you 2400x1500 pixels, which isn't very helpful.

Scanning a full frame at high resolution took 16 seconds, transferring and processing the data took another minute, but I expect that would vary with processor speed and RAM. Not surprisingly the results were close and sharp. And, ultimately, that's what it all comes down to: the final image. Does it fill the question? I had with the same software's interface, the final result was much less

Shifts into overdrive can be a little off-kilter. Not to worry, you get a higher optimal rev range, or output 30- or 34-hp (see below), the 90-100-hp Drive packs a lot of power into a small package. It's better than Drive again, though, I find the software still isn't a little bit short of the hardware.

Move to Excel and other calculations are a few more advanced functions aren't going to make serious money. In fact, if you design the formulas well, some of all levels will thank you for it. ☺

History: Government's share was nearly 100% in

**Table 1**

[illegible][illegible]







## Firms dumping data to avoid Y2K problems, U.K. report finds

LONDON (NSI)—A report released in late April from Information Systems Integration (ISI) has cast doubt on the prevailing conclusion that businesses in the United Kingdom are dumping up to 90 percent of their data rather than fix the code and ensure demands of compliance for 2000 (Y2K) data conversion programs.

According to the firm, which specializes in implementing Y2K online manufacturing systems, many major companies that have invested in making hardware and applications compliant are finding that historical data cannot be transferred from the old systems because there is no simple upgrade path to the new system.

Instead of this, the company has found that the large and old industrial base of large-scale steel companies across England is little as 10 percent of the original data is converted into the new Y2K compliant systems.

Poll Johnston, ISI's director, said that many organizations have opted for maintaining financial and other important historical information that they need to keep—sometimes for legal and auditing purposes, but also as a primary tool for detecting customer errors.

"The problem is, nobody is really sure what is the important data and what can be discarded. We've found a way to avoid having to make this impossible choice by keeping all the data online at a fraction of the cost of data conversion," he said.

According to Johnston, Year 2000 online workstations involve taking the historical data from the non-compliant mainframes, compressing it and archiving it on a PC server-based system, which is less costly on storage and maintenance.

The data is then kept online using complex data retrieval software, which means it can be retrieved and viewed instantly on any PC in the organization.

For many companies, Johnston said, this might also be the first time that all their data has been available online, because the huge cost of mainframes through often restricts availability to a period of just a couple of months.

"Now clients are finding they can compare a Year 2000 data conversion task with-

in weeks, rather than several months, with lower spending expenses too as storing compressed data on a PC server is much more economic than on a mainframe," he said.

"Some customers have also found they can dramatically reduce the amount of maintenance capacity they need, as the system that once they have transferred the

data, they can sometimes stop the original application and decommission the main frame," he added. □

ISI: <http://isiworld.co.uk>

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**Scanner / Backlit remains remains strong**  
Continued from page 98

child is making a reference to one of these flowers and has trouble with a specific word, let me also use click on to find her a person-word sheet.

Immersion Reading Journey which has the same Letter-Letters format, was a success with my youngest son. I had been with the program too long because it is fun and colorful and easy going format. His teacher felt he had progressed by a quantum leap in a few weeks. Several other mother-with children in the same age group had the same experience. This could be one of the best products you will ever buy for your children. The price is higher than the average CD-ROM, but in terms of educational value, it is probably the cheapest because the content is

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## In brief

### Two lines in one mobile phone

**PHILIP HUI—**Complex, the smart card specialist, has developed a cellular add-on technology it says will allow digital phone users to have two numbers assigned to their mobiles.

The facility would, the firm says, let users who want to have one number for business and another for personal calls (while retaining two numbers SIM [subscriber identification module] cards, however, the SIM can be used to allocate any digital phone user to one or more digital cellular networks.

That's made possible, Complex says, by the SIM card's ability to inherently monitor new sets of network IDs at once. Previous two-number systems, the firm says, have relied on complex network software to support a line data and two spaces.

On all two line systems to date, the network system only works on the subscriber's home network. When roaming on an ad hoc or remote network, the second line is usually unavailable. Using the Complex technology, however, roaming on foreign networks still has access to both lines for all calls.

The technology also has a single card that handles incoming messages for type—business or private.

Source: <http://www.complex.com>

### How summer reads, biometric data

**JOHN KILGORE, Ph.D.—**AugerPro Inc. has announced a fingerprint identification technology called E-field that reads biometric data below the skin. As a result, children and other "human nature objects" can't load the reader, the firm says.

Biometric security devices work by measuring some aspect of a person's body, such as fingerprints or retinal scans, and using the result to verify a person's identity.

According to AugerPro, a person's "real" fingerprints actually begin before the skin's outer surface layer, which tends to become dry, calloused, worn and may suffer real-world conditions. As a result, a non-invasive reading will produce false results or fail to acquire any print at all much of the time.

"People talk about using 100 to 200 on a full-size scanner area, but they never talk about the prints they failed to acquire in the first place," according to AugerPro president Leon Kasper. "If a technology doesn't read, it's worthless. Most scanners stop there and say, 'Well, that's why our device has been on the ability to acquire.'"

Mostly, says the company, plans to begin shipping the system by summer and expects to demonstrate the technology at the 1998 Computex/Asia/InfoWeek show in Chicago in late May.

Mostly, says the E-field technology has been undergoing tests at 100 companies since for several months and AugerPro's new hardware has the first single-chip working version.

Source: <http://www.augerpro.com>

THE  
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# Tech Enterprise

TECHNOLOGY SOLUTIONS FOR BUSINESS IN CANADA

JUNE 1999

Data backup methods ..... 104

Hardware to protect  
your hardware ..... 112



By Bill Ste

**O**ne of the biggest loss problems facing the business industry, computer theft is second only to auto theft. Every day about 10,000 American businesses are broken into just for their computers. While the loss of hardware has financial costs, it often the lost information and losses resulting from business interruptions that carry a higher price. This applies not only to regular businesses but to home-based businesses. For example, where losing all their data can be devastating.

Beyond the loss of computers and data is the loss of coverage that can follow a heist. The insurance industry is getting very picky about insuring clients with multiple claims. As a security consultant advising a specialist insurance broker, I remember a local area network (LAN) specialist who was claim-free for 10 years. After one break in his business company declined to insure his system.

In this article, I will give over physical defenses and how the loss of hardware is a computer expert. Needless to say, it is painful to the bone. A security system only

**The door to the alarm equipment should be more secure than the front or back doors**

does a thief if it increases his or her chance of being caught. Identify such a system consists of three components: the first layer of protection, the alarm, and the second layer of protection.

#### The first layer

The first layer refers to defenses on the outside perimeter of your house or office. This has two goals:

1. To deter a thief for at least two minutes by implementing "target hardening" techniques such as installing window bars, polycarbonate (bullet proof) sheets, glass, and shutter plates. (Remember, these techniques must meet fire codes.)

2. To attract the alarm. If this layer is breached through door contact switches or detectors that respond to the sound of breaking glass, for example.

There are more than eight ways to bypass a typical aluminum and glass storefront, so some target hardening needs to be done. Since there are no articles like this one, I will not list specific details here. A security consultant in your city can give you without recommendations. Following though, are a couple of "hacks" to consider when starting to secure your home or office.

It's hard to say to lock through. While can be hardened with a combination of about 70 50 steel mesh, making two pairs, and 70 inch plywood. This combination is recommended and used by the RCMP.

If your office is in a secure location like an industrial park then the reinforcement will not work. Adding more hardware to the outside perimeter is a waste of money because the thief has all right to bypass whatever you put up. Instead, spend money

Continued on page 106

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# Data backup methods

## High capacity cartridges, discs and online services replacing tape drives

By Ross Macdonald

Despite the increasing number of alerts daily about hackers breaching our computers with intent to steal banking and other data—whether personal or work related—so far through hardware loss, theft and viruses or without user-friendly defense files and techniques by mistake. Future losses seem more than just rates on all the savings in hard drives made, particularly hard on our more costly electrical backbones "spike" our computers into oblivion.

The answer, as everyone will know by tonight's news, lies in regularly backing up whatever you use for storage (usually the hard drive). This means that the introduction of any data corruption—whether accidental deletion—or as well as any hardware failures will not result in a loss of data, which is often more valuable than the computer system itself.

Craig McCallan, business development manager for Stronglink Canada, notes "the percentage of people with computers have a habit—and that habit is they don't back up. They have to literally go through the pain of losing data—especially their computer files or on video or their hard disk [and] to crash or a file [and] to be accidentally deleted. These people become very open to looking at alternatives to their habit. The approach of IBM, for example, is a perfect opportunity for people to consider backing up. Not to solve the 125 problems but to try themselves out to deal with the problem."



But the biggest tape could never (particularly speaking) do more than store large amounts of data due to the time it takes to read the encoding and decoding bits. This is also a big time to run executable files and programs or to modify access files.

The traditional solution for the consumer those had long been a tape backup system of some description. Nowadays, however, tape has lost favor despite the fact tape cartridges remain a very economical and a cost per megabyte leader.

That's because tape could never (particularly speaking) do more than store large amounts of data due to the time it takes to read the encoding and decoding bits. This is also a big time to run executable files and programs or to modify access files. Many traditional manufacturers don't even make tape drives anymore because the alternative has been too slow and expensive to be replaced as well as the time and storage costs to replace a tape drive's capacity.

But now, we have a whole new set of solutions to deal with. As applications and hard drives get bigger, the time it takes to get bigger too. It's not possible for home users, small businesses, and even individuals with large libraries to create gigabyte-sized documents, and even multi-megabyte multimedia and graphics files on their PCs.

But when the time comes to store such files or pass them on to others, it requires much of an enormous backup system, copying and installing your tape system into everybody else's computer or just moving your whole computer. There are all kinds of individual reasons for wanting to move or transfer and you—again creating problems of space, backup images, legal types, moving, etc., incompatible software, and data costs transferring large amounts of data.

Fortunately, technology has kept up with just about all the changes and backup demands of a computer savvy population to make our data safe and secure when we're not. Following are some backup alternatives.

**Cartridges.** What you end up with, however, is a stable number of whatever you write in the drive. The stability comes from the fact that the digital data is etched into the upper surface of the disc as it is read by computer by way of magnets that way hard drives, tape and other magnetic media can.

### Removable cartridges

There is a much to see about removable cartridge systems because they combine little more than the creation of an infinitely used hard drive. Their storage medium is the hard drive, hard drives, they're as fast as hard drives and the capacity exactly matches however many cartridges you can afford.

The drives themselves come in internal and external versions and they are generally accepted as another drive by backup utilities. Their data transfer speed means you can run any executable file or program from them.

One of the benefits to cartridge systems is that the medium is infinitely usable and will not be affected by even the most frequent of thousands of hours of use. The alternative is that the cost per megabyte is the highest of all. Cartridges for the recently released Super 128 drive sold for about \$120 in reality at last December.



### High speed or high capacity floppies

These tape cartridge drives, these drives are available in internal and external configurations and depending on how they're connected (parallel port, SCSI, FireWire, etc.), they are fast enough to operate as additional drives for making backups as well as using for data storage and security. The most popular of these is definitely the SuperDisk drive.



And the new Super HighDisk (which will be in Canada soon, too) will be much faster than the latter.

The medium inside the cartridge for any of these high-speed, high-capacity floppy drives is the same size, magnetic type of surface you find in a regular floppy disk. The cartridges are about the same size too. The difference is in how the heads write and read data and how that data is transferred between the drive and the computer.

Any drive in this category constitutes a handy, economical way to back up your important files, although the limits imposed by disk capacity (between 128 and 256 MB) will mean multiple disk backups of large documents.

Continued on page 73

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### Laparing your computer security

Continued from page 162

not the second layer, since the police response time could be longer than five minutes.

#### The alarm

- The alarm has to do three things:
  1. Activate as quickly as possible.
  2. Send out the alarm.
  3. Decrease the police response time

Most burglaries are initiated by the time the alarm is activated. I demonstrated this to clients by having them time me for 30 seconds as I ran through their office grabbing things. Then I ask them to visualize what could be taken in that time with four people helping me. Based on this, giving employees 30 seconds is not enough to deactivate the alarm only because for non-vital "alarm sensors" before police arrive. Therefore the only acceptable delay is 2000 seconds. This means placing the keypad or switch outside the door. (Keyed switches are available with high-security keys).

There are two types of alarm by coding the telephone wire or disrupting the alarm itself. Therefore the telephone wire has to be either protected, monitored with a SPAN line, or locked up by a cellular device. I recommended installing all the alarm equipment in a secured room or hiding it in the ceiling space. It is in the office telephone closet, put a disconnect and a disconnect from the phone on the wall and disconnect from the phone on the wall. This must be done because it is the facilities level of the whole system. If the

alarm does not send out the signal then the thieves have all night to bypass the second layer. Therefore the door to the alarm equipment should be more secure than the door to each device.

Install an alarm-activated flashing light outside your premises. In an industrial park at night this can dramatically decrease the police response time, as they will not have to hunt for your address. All address numbers at both the front and the rear of the building—can also be good idea. Lighting is only useful if there are people doing or waiting for regularly to see something suspicious. Have lots of lights for your house in the city. In an industrial park, however, there is nobody to witness a crime so it does not make sense to light up the place for the burglar's convenience.

#### The second layer

The second layer of protection around computers is necessary because, as I've tried to illustrate, most burglaries are completed in two or three minutes—long before the police arrive. Therefore, this second layer has to deter the thieves long enough for help to arrive. Crime prevention standards usually set this at five minutes for non-critical locations.

Computers can be physically protected. Cables are simply vulnerable. I demonstrated this once to a client who maintained that "thieves don't care that their tool enters" by cutting the cables with a pair of special saw-tooth pliers.

I recommended complete cable, especially the server. There should have at least 20-

inch thick steel walls and 4-inch thick doors, with holes at the top for ventilation and cables, holes need to be sealed down with concrete expansion anchors (425-inch to 70-inch diameter) that will concrete into a computer safe of such quality will run about \$700 to \$1000 plus installation. For smaller budgets a "good" stainless steel anchor is good value for the money (about \$200).

Laptops are highly prized by both owners and thieves. If they are going to be left at the office overnight, I recommended locking them in a large fire-resistant gun safe with shelves inside. A "fire safe" from a high-price office supply or hardware store is not a good bet, because the word "safe" here means safe against fire only, not against theft. I have seen these safes opened in less than five seconds. I used a digital combination lock that opens two compartments and two people—in open. Keep a log, signed by both the administrator and laptop owner every time the safe is opened. If you have a computer safe there is usually sense in using a keypad.

For a room with large windows (high-capacity laser printers and lots of other valuable equipment), I recommended sensor generators. These machines are specially made for burglary detection and are triggered by the glass plus a vibration-sensitive detector. When activated, they fill the entire space with a harmless dense white fog, which makes it impossible to see. It runs in 30 to 40 seconds.

The effectiveness of these machines are demonstrated last year when one was placed

against the United Kingdom's main SAS Special Air Service. The SAS was ordered to retrieve a file in a house protected by a mobile machine (about which they were doubtful). Fortunately they were alerted and night vision goggles they were unable to retrieve the two documents. The British government currently uses over 1,000 such machines.

Mobile machines run between \$2,000 and \$4,000 and can eliminate the need for many other security upgrades. For example, I recently surveyed a computer center in Richmond, B.C. who needed to protect a small room where it stored Pentium and 8048 chips. The company also needed to protect its two server tape drives. Rather than spend \$2,000 just on two server safes, I recommended covering the servers down stairs into the room where the chips were stored and installing a smoke machine. And install window bars, locks, etc., when you move you can install the smoke machine and take it with you—that protecting your security investment. Mobile machines are also an effective anti-bullying device.

Remember that you want to buy time after the alarm is activated. By increasing the level of protection delaying tactics, the threat of becoming a break-in victim is decreased. □

By the Way, Mike Smith is Director, B.C. University Open Security Office, and a security specialist. He has extensive corporate and police experience. He can be contacted at Tel. 604-682-5474, email: msmith@opensec.com.

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# The Melissa aftermath

The Melissa virus turns into a fable for the Age of Technological Nervousness

By Jeff Brann

**A**t the end of March, a flood of warning about a potentially nasty new Microsoft Windows mail virus began flooding over the Internet and were shortly after picked up by the mainstream mediums of television, radio and newspapers. Only now Melissa the newly announced virus about one-fifth the size of thousands of other viruses previously detected, by the closeness of its monthly pattern and the quality of the programming that made it was.

When an email message carrying the virus was received and opened by a recipient, sending computer software, the virus code executed a set of instructions that required the Melissa virus not to 50 addresses on the recipient's Outlook Express email list. The result was a flood of automatic chain letters that, while people received an email from the accounts of someone they knew, opened it and thereby automatically infected another 50 people on their own email address list.

In some corporate networks, the automatic e-mail traffic increased accessibility rapidly and network administrators had begun shutting down networks in fear that the software was causing the flood of unwanted messages.

However, as people and companies in the new virus was, it turned out to be quite easy to counteract. Within about a day after the first reports of Melissa began circulating, virtually all anti-virus vendors were posting a downloadable "fix" to Microsoft's own Web site.

The Melissa panic soon subsided as the virus was quickly removed from affected computers. In fact, as it turned out, while loss on reproductive ability, Melissa was rather benign—it didn't actually do any specific damage, such as making files or reformatting hard drives.

## Enter the fable

Then, just at the point where the Melissa incident might have been expected to fade away like many other two-day news items, across the story got new legs. News reports surfaced of an America Online subscriber

being quoted as saying the AOL account had been "hacked" by an unknown hacker who used it to post the fact known upload of the Melissa virus.

From subsequent press reports, it became apparent that American law enforcement agencies, aided by state and local and not only security companies were actively pursuing an investigation to try to catch the person or persons behind Melissa. Shortly after, an arrest of a suspect was announced in a high-profile press conference.

As the story kept building and turning through the first two weeks of April, several press conferences in covering Melissa were staged, and details of police hours of an unrelenting investigation. With the well-reported Melissa account distributed, the increasingly named David L. Smith, and his attorney-in-charge code named "Michael," stood in jeopardy of serious jail time, fines and civil lawsuits.

## Melissa, more news

Along with the Melissa-specific bits of the tale a picture of the misrepresenting situation began to appear as part of the background to the story.

Virus writing has long been known to be an almost exclusively male activity, apparently an expression of the digital young man desire to show off, dominate and annoy other people, and gain status among one's peers. It probably isn't illegal to deliberately make viruses, especially in America where writing viruses may be protected under the Constitution as a natural exercise, a form of free speech, unless it illegal, however, is knowingly spreading a virus, especially if the victim ends up as damages other people's computer systems.

It's also illegal to appropriate another person's email account and use it to commit an offense, as is a lie to have been close to actually spread viruses. While the vast majority of those who play with viruses are doing so as an individual, puzzle solving or programming game, those who deliberately do through negligence harm other people's property with a computer virus would open to be more regarded as

major criminals by the FBI and other law-enforcement agencies.

## Every dark cloud has a silver lining

Despite inevitable Melissa became a great marketing and public relations opportunity for the publisher's antivirus software, computer security consultants, and even for potential looking for virus-cyber-virus studies. Finally,

press reports about computer profiling began anti-Melissa items seemed to mark the final whirling dervish of Melissa news.

## The last breaths of the merry pranksters

This series, who personally has got loose by a computer virus infection back its early

Continued on page 149

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## Personal encryption gets easier

By Rod Lombard

The use of personal encryption doesn't seem to be on the verge of becoming commonplace, but some quite good news. It would be nice to quickly and easily encrypt all email messages, to a file on your local drive, but it has always been just a slightly less difficult, or a just not worth the bit, for everyday use. This, however, may be about to change.

### Norwalk Lock Personal Edition

From Cybertec Corp.  
100 100 St. East, Suite 100, St. John's, N.S.,  
A1A 1A1  
Tel: 902 464 4641 Web: <http://www.cybertec.com>  
Price: \$24.95

Encrypting a message still requires, and always will require, that you contact the recipient and let him or her know a password. This is a real on-line problem, but as convenience increases, however, as more people share computers, security will also continue to grow in importance. There are many companies that have tried to make a secure and easy-to-use personal encryption product, but none have done it quite as easily

as Cybertec Corp. with its Norwalk Lock Personal Edition.

Norwalk Lock is an encryption/decryption software program for Windows. It can be downloaded from the company Web page for US\$19.95 (about \$30 Canadian dollars). The program runs as a standalone application. When you encrypt an email message, it is placed in the mailbox of your email program to be sent when you next check your mail. The program automatically sets up the popular email clients (Outlook, Outlook Express, Eudora, and Netscape).

A small download will place an icon in Outlook or Eudora for Norwalk Lock. This feature makes it easy, though not with any new version of Outlook 2000 after company reports to have this fixed by the time Office 2000 becomes a retail product, which is expected this summer. Encrypted email messages arrive at their intended destination as an attachment to a message directing the reader to the Norwalk Web page where they can download a free virus. Obviously this is a nifty down virus of Norwalk Personal that will only decrypt files.

Norwalk Lock uses the Microsoft Base Cryptographic Service Provider software that comes with Windows. This allows up to 40-bit encryption, which is decent but easily decipherable by properly equipped govern-

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ments or corporations. However, a small download from the Microsoft page will give you Microsoft Enhanced Cryptographic Service Provider. This will allow you to use Netsite Lock with PCI 128-bit RC2 128-bit DES 64-bit, 1024 TWO 8000 1024-bit, or the DES 64-bit cipher thus:

Here a what CyPact's key sizes 128-bit encryption, 70 bit key is 128 bit long, a key size of 128 would be 17 million (1,000,000,000,000,000,000,000) times more difficult than cracking a 56-bit key. The company claims a 56-bit key is considered credible, a 128-bit key isn't, and claims have been made before but it is likely that you

128-bit key encryption is safe. This is why you cannot download the Microsoft Enhanced Cryptographic Service Provider unless you live in the U.S. or Canada (the Microsoft site mentions to use that your Internet service provider is within North America before you can download it).

Technical details aside, the point of Netsite Lock is to make encrypting a file or message in new an ongoing and shipping in typing and sending. The more information, and a true, time-limited trial, go to the company's site. Personal use of encryption is not a fair tip of the scales, but will protect the file. Maybe could change it.

## PowerPrint offers Macs access to more printers

Recently, iC-based software has entered PowerPrint for Networks, a product that will allow Mac users to print to virtually any PC printer on an Ethernet or Token Ring Network. The software is easy to install and use, and provides Ethernet printing connectivity for Macs to more than 1,000 printers, both local and remote.

Software says the kit is an ideal solution for organizations with a mix of Mac and Windows PCs and the need to share printers on an Ethernet network. The kit makes sharing of low-cost, low-coverage printers, as well as impact and high-speed laser and inkjet printers, easy and affordable. Software says the kit supports Mac OS, Windows NT, Windows 95, and Windows 3.11. The kit also supports Mac OS, Windows NT, Windows 95, and Windows 3.11. The kit also supports Mac OS, Windows NT, Windows 95, and Windows 3.11. The kit also supports Mac OS, Windows NT, Windows 95, and Windows 3.11.

The new products Apple has introduced over the last year—iMac, PowerMac G3, and Power Macintosh G4—have inspired developers to bring up innovative products," said David Richardson, Apple's new president of developer relations. "Products like Software PowerPrint help create solutions on even better network offers."

PowerPrint for Networks is scheduled to ship to Mac users this year for a suggested retail price of \$249. —Miguel Johnston

Information: <http://www.powerprint.com>

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version makes that you, this program is very subtle and compares, it handles with many other Internet applications such as Microsoft Messenger and Netscape Communicator. Unlike previous versions that only to find opponents and handle a game with only a few clicks, MCO's only drawback is that it has so many features, it can be hard to find a new user to understand. It's simple, efficient, better than most desktop features, alternative this experience.

#### Pageo

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Version: 3.1  
Release date: Dec. 7, 1998  
Homepage: [pageo.com](http://pageo.com)  
File size: 463.7K  
License: Shareware (30-day trial)  
Cost: \$2.95 per month  
Installation period: 14 days (30-minute trial)  
How your Windows page runs:  
Also includes Windows NT version  
Pageo is a unique time on Internet experience, it puts a page on your desktop. The person visiting to reach you can just make a call, you will see their message (even on some pages) on your desktop. Pageo works best if your computer is always online.

#### PeopleLink

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Version: 2.1  
Release date: Dec. 7, 1998  
Homepage: [peoplelink.com](http://peoplelink.com)  
File size: 381.1K  
License: Shareware  
How your Windows page runs:  
PeopleLink was designed specifically to allow people with similar interests to quickly and easily find and communicate with each other. Whether you want to talk about C++ programming, find local guitar players or help the PeopleLink. PeopleLink lets you send messages and chat with other people who share your interests.

#### PenView

\*\*\*\*\*

Version: 3.7  
Release date: Dec. 15, 1998  
Homepage: [penview.com](http://penview.com)  
File size: 1,875.0K  
License: Shareware  
How your Windows page runs:  
Most Web sites by just letting people send messages to one another. But PenView started life as another soon-to-be web chat program, but has recently added Internet messaging capabilities. PenView's excellent downloading and unique Web tools feature add up to an exceptional program.

#### Radical Pager for Internet Explorer

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Version: 3.0.0.0  
Release date: March 10, 1999  
Homepage: [www.radical.com](http://www.radical.com)  
File size: 444.0K

Continued on page 117

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How your Windows page runs:  
Real Computers is a unique time on Internet experience, it puts a page on your desktop. The person visiting to reach you can just make a call, you will see their message (even on some pages) on your desktop. Real Computers works best if your computer is always online.

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# British researcher predicts most Y2K problems will occur this year

LONDON (ENR)—A report published in late April by Techline 2000, the United Kingdom's industry-funded Y2K awareness

body, suggests that 40 percent of Y2K-related computer problems will occur this year, rather than after the date change.

At a press briefing held in London, the report's author, Ian Hugo, a member of the British Standards Institute (BSI) committee,

which published the BSI definition of Y2K, continually late last year, said that this conclusion could cause problems for companies that think the Y2K issue is a year-end problem.

In the report, entitled *Realizing Year 2000: Disruption*, Hugo—who is also the Executive Y2K00 committee chairman, argues that the effects of the Y2K programming problem far from being an end-of-year issue, could impact companies for a year or more.

"The current focus on Jan. 1, 2000, although understandable, is complete and unrealistic. In particular, the media focus on the outcome from 1999 to 2000 is misleading, as we believe that this will be only the process to 10 percent of the problem," he said.

According to Hugo, companies must understand that the problem that impacts an enterprise need to know the likely outcomes of computer failures to enable effective contingency planning.

The report, which is supported by the U.K.'s National Computing Centre (NCC), predicted billion-dollar damages when companies are most likely to have problems.

According to Helen Gaudin, the executive director of Techline 2000, organizations really do have less time than they think. "The problems have already started and they will escalate from now on, probably peaking in year three," he said, adding that the rescue problems will continue for longer than many think it due to a "drag" factor.

The drag factor, Gaudin said, is the lag between technical errors, recording and diagnosis. Improving workable hours must now be directed for year three, and the process that has failed is needed as it is used.

According to Gaudin, which is fast becoming the Y2K-Vibrating industry on Year 2000 issues, initially most problems will be resolvable within organizations.

Conversely, however, that problems will become increasingly difficult to manage at the rate of some situations.

"The Y2K problem is further complicated because the many process of taking it will introduce new errors. And a lot of technical problems occurring at the same time towards the end of 1999 are likely to cause confusion," he said.

Ian Hugo, meanwhile, said the drag factor is also exacerbated by the limited efforts of others. It failure to act now by mid-year may take weeks to cause problems elsewhere.

The report concludes that there are two worst-case scenarios in companies that have failed to address the Y2K issue ultimately death by thousands and death by a thousand cuts.

According to the report, death by attrition will occur in companies where several failures in Year 2000 projects overlap.

Death by a thousand cuts, meanwhile, will happen where multiple failures occurring at around the same time in different organizations combine into the failure of a supply chain or trading group. □

Techline 2000, <http://www.techline2000.co.uk>

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# 10 Web sites to help you find that summer job

By Judith Schlegel Roberts

Are you a high school student looking for a job? Need to acquire some job skills between sessions of university? Need to know how to write that killer resume to land the job you want? Lots of Web sites may help you find the summer job your looking for.

**1. Career Development Manual** • This online manual from the University of Waterloo is designed to help you plan your career. There are sections for determining what sort of work is most suitable for you, how to research career options, and how to start looking for a work in the field of your choice.  
<http://www.cde.uwaterloo.ca/cdm/cdm.html>

**2. Human Resources Development Canada** • This Web site will help you

**3. Summer Jobs: Opportunities with Camps, Resorts and Seasonal Employers** • This is good place to look for seasonal work. Search by job type or location to find the best. Also list of seasonal job you are looking

for. Read the summer stories from students and employers who found this site helpful.

**4. Canadian Business Centre** • Use the links to help prospective employers

find you! You can obtain your business information online, change your online address and job experience. Prospective employers then search for the capabilities they need, and if

Continued on page 142



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select and plan for your career. In this list of new technologies and software aimed primarily at high school students looking for summer jobs and those who want to start planning a career. Services are available in French and English.  
<http://www.hrdc.gc.ca/emploi-employment.html>

**5. Federal Student Work Experience Program** • Looking for a summer job



with the federal civil service? FOWEP provides full-time or part-time school (SEEP) college, university, and university students access to seasonal jobs offered by the Public Service of Canada.

<http://www.fowep.ca/fowep.html>

**6. JobSite's Guide to Resumes Writing** • Need help writing that resume? This guide can help you write a resume to land the job you really want. You'll find out something (techniques) information on writing letters and tips on how to make your resume stand out from the rest of the job.  
<http://www.jobsite.org/jobposting/resumes.html>







# Guide written for network newbies

By Keith Schenck-Babcock

Most books about networking are aimed at people who are already technically proficient with computer hardware and find it easy toying up a computer. *Build, Upgrade and Repair Your PC Network on a Shoestring Budget* is for the rest of us. This book assumes work in a group that uses often slow but that for in the mean to network two or more computers together. It covers the basics about buying the component required to build the network best suited to your needs.

This book is timely, since there is an increasing number of households that have more than one computer. By networking the machines at home, users can find the file through a accident on one computer while

debugs screen data in a CD-ROM drive on a system at the other end of the house. You get the idea.

## Build, Upgrade and Repair Your PC Network on a Shoestring Budget

Author: Steve S. Kaufman

Publisher: Barnes & Noble Inc.

For info: 800 321 1111 <http://www.bn.com>

ISBN: 1-57175-047-7

Desktop: 400 pages, 1999

CD-ROM included

Price: \$22.95

Rating:

Information content: \*\*\* 1/2

Readability: \*\*\* 1/2

Issues for Beginners to Intermediate

Overall Rating: \*\*\* 1/2



*Build, Upgrade and Repair Your PC Network on a Shoestring Budget* begins with an introduction to networking concepts and what you do with networked systems. It then goes on to look at how to design a network best suited to your needs, selecting hardware, and how to find what you need for a reasonable price.

Other major topics covered include how to configure network cards, configuring and optimizing your use of the network, and when you are ready, how to upgrade your network. The last way to understand and learn networking is with a hands-on approach, and this book is a great

for the beginner who is willing to take the plunge.

Unlike first-time users with many other computing texts, the CD-ROM included with this book is not just used as a spare parts manual. It contains a multimedia presentation that covers some of the issues covered in the book, such as installing network cards, looking up facts and entries (also here in confidence in the network. This is a great addition because while the book is good when it comes to explaining things like how to install a network card, actually seeing how it is done is a further encouragement for those who are tired about installing computer hardware.

My only real criticism I have of *Build, Upgrade and Repair Your PC Network on a Shoestring Budget* is that some points are not as fully detailed as others. For example, in the section that talks about installing a network card, it says "Make sure that the card is in the right type of slot" and then goes on to list the various types of slots. Unfortunately there's no description that would prove useful in the service, as the physical differences between the card types.

This is a good book to get the networking advice connecting computers together quickly to help to understand the material and would be an excellent book if it weren't occasionally lacking in the details that a novice requires. **B**



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# Office ephemeralization

Advances in digital equipment means even small business can do more with less

By Russ MacDonald

In the course of writing during this past decade of intense technology development, I have witnessed first-hand the evolution of office digitization. Manuscripts were once typed then submitted by courier for transcription to the computer, but it wasn't long before my editors were asked to fax our work to the office, incorporating the purchase of a 21.33K fax machine. Once computers became more commonplace, we were requested to not only buy one (and in those days a 386 with 20 MB hard drive ran about \$2,000) but also to submit our work on floppy disks (which cost a whopping \$1 each and were seldom returned).

As things stand now, the digitized publishing office demands that editors not only have a computer and current word processing software, they also need a scanner as well as an account with an Internet service provider (ISP) for online research and for submitting manuscripts and graphics straight

into the publisher's system. Of course, changes are still greeted using the old elex, manual techniques.

As you can see, increased office digitization has directly affected the way we live—these innovations do not work but the impact has been even more pervasive in the regular workplace world of offices where automation—an estate of short-lived changes that are each introduced in an ongoing effort to do more with less—is the order of the day.

At the biological level, the process of ephemeralization has had two major effects: first, we have people in the office and those who would be expected to accomplish considerably more. The resulting increase in stress-related health problems is getting much worse, at least though nobody seems ready to intervene in reversing the process.

Unquestionably, however, the influence has been more positive. Where once had

*Continued on page 126*

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## Make it fit

Techniques for trimming text

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China	2000	1,240	410	33
China	2010	1,370	540	39
India	1990	850	180	21
India	2000	1,020	260	26
India	2010	1,150	360	31
USA	1990	260	200	77
USA	2000	270	210	78
USA	2010	280	220	79

Every so often you'll find that a document takes up too many pages for a document you plan to photocopy 1,000 times, for example: the difference between one page and two is 1,000 extra copies. Is that, add hours of collating and stapling (just a few or two), and what should have been a simple job becomes a nightmare.

Even if your needs aren't as extreme as this, there will be occasions when you want to make a document or article a little shorter to fill the available space. This month we look at a variety of tips and tricks for reducing the space your text takes up on the page. Most of these options will also work to increase if you ever need to expand a piece of text to fill up a space.

Before you look at word processing solutions, always look at the documents itself and see if you can edit and enter words.

**Table 1**

If you're using Word 97, you should start with the Shrink to Fit option, which automatically reduces the size of all items used in a document. To use this option, select File, Print Preview and select the Shrink to Fit button on the Print Preview toolbar.

While this solution is quick and easy, it's also fairly unsophisticated and won't work in all instances. For example, it won't allow you to state down a short article that a researcher or to switch a document to below it a case.

**Abstract**

A simple way to make more space is to decrease the size of the margins. In Word 97 use File, Page Setup and select the Margins tab. Reduce the size of the margins and click OK.

Another simple solution is selecting the line height to the minimum of vertical space between lines of text. You can do this within a paragraph by selecting **Format, Paragraph, select the leaders and spacing tab** and set the **Line Spacing to Multiple** and type "93" (as quoted in the **At** text box. This reduces the line height to 93 percent of the default measure.

[illegible]

Decreasing line size can dramatically increase the amount of text that fits on a page. Although about 37 appears to make other criteria best, you can type either that one<sup>2</sup> in the list and you can cut half amount. For example, 11.5 point type is almost indistinguishable from 12 point type. Just follow the advice.

Even in the same pain site, some have said up less speed than others. Also you'll find some foods are more suitable at smaller portions to eat than when you are looking to lose weight but maintain resistance.

You can also reduce the character spacing (the space between letters, numbers and symbols) to fit more words on a page. Alter the spacing between characters by selecting the text in one of three formats: Run, Line

select the Character Spacing tab. From the Spacing list then select Condensed and in the Byward box scroll to find the best setting. You can reduce spacing to .1 point increments. You'll find that 12 point text can be reduced by .2 point and still remain quite legible.

[illegible]

**L**ikewise, you can add a blank line between paragraphs by pressing the Enter key twice in the middle of a paragraph. This more professional approach is to use a half space (appearing around the point) instead of a full space (full point). To add a half space between paragraphs select Format, Paragraph and select the Indent and Spacing tab and in the Spacing, select the line where you want to add a half space and click OK. After doing this, you'll only need to press the Enter key once between paragraphs.

[illegible]

Inserting additional extra space between paragraphs is easily by indenting the first line of each paragraph. To do this simply press the Tab key before you type a paragraph and press the Tab key only once at the end of each paragraph. You can set Word 7.0 to automatically indent the first line by selecting Format, Paragraph and then the Indent and Spacing tab. From the Special list box select First Line and in the By text box type one centimeter and click OK.

1000

Using Hyphestration will save space and even suggest right margins. Form an automatic Hyphestration by selecting Tools, Language, Hyphestration and select the Automatically Hyphestrate document checkbox. You can also the Hyphestration menu to give more hyphestrate phrases the same weight or increase the same weight and you can limit the number of consecutive hyphestrate by specifying a value in the Limit Consecutive Hyphestrate To text box. (C)1998 by GnuPlot.

1999 2000 2001 2002

If you use styles, such as Water's default styles, you can edit them to decrease the spacing above and below the headings. For example, the default spacing for the heading 1 style is 12 points below the paragraph and 18 points after. These can easily be altered to nine points before and nine points after. To alter a style, select Format, Style and then the Styles list since the style is mostly for this one heading 1. Select the Modify button and then select Format, Paragraph and then the Before setting to nine points and select OK, OK and Close.

**Figure 1**

That I had computers that slow, such as step-by-step instructions, will take up less space and look better if set as two newspaper-style columns. To create columns, highlight the



• Closely wrapping text around an image can save space and make a page more readable

text to place in columns, select Format, Columns and select Two Columns and click *OK*.

**References**

If you're using columns you can narrow the width of the gutter (the space between columns), which increases the width of the

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To give the impression of double spacing without wasting space, set line spacing to 1.2 on 1.25 spacing. To adjust line spacing use Format Paragraph and in the Line Spacing list select 1.2 to get one and a half lines of space between each line of text. Alternatively, use 1.25 on 1.25 spacing by selecting Single and in the All text line type 1.25 on 1.25.

Double spacing has its roots in typewriter days when you could only single or double space a document. Today's word processors offer more than spacing options so, if a document doesn't really need to be double spaced, there are sometimes a couple of reasons.

**Abstract**

If you're using graphics, you can crop or resize them to reduce the space they occupy. To resize a graphic, select it and drag one of

[illegible]







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# The fun we had

By Jeff Evans

When IBM introduced its first personal computer in 1981, based on a primitive Intel microprocessor and the first version of the Microsoft DOS operating system, there were only a few million computers used in the world. Now there are hundreds of millions. Including at least five million Canadians. In general, even if accurate, there should be over one billion people routinely using computing devices for work, learning and play within the next four or five years.

What has always interested me about the personal computer revolution is the degree to which it is "just great" rather than being the product of any master plan. The "personal" aspect of the PC has been the key. Computers were chosen before the development of PC hardware, software, and the World Wide Web. In the Computer Paper, we've always tried to stay in touch with both our computer-using readers' needs and wants, as well as the activities and products of the computer industry.

**(Computing) power to the people** Since the U.S. military, government, and big business wanted a disproportionate hand in the development of "big iron" mainframe computing, and in the substitution of a lot of the fundamental research and development that underlies modern technology, did the personal computer rise something that virtually nobody in power possessed, wanted, or knew what to do with in the early days.

The PC was dismissed by most professionals as a hobbyist's machine, a toy for amateurs. In a way there were really nobody personally computing, started in a hobby that became an obsession, doing a career, for the sake of largely self-taught and motivated people who in various ways built the PC industry.

## Let me count the ways

The word "hobbyist" is applied to anyone whose interests (and, the amateur is someone who tries something periodically because he or she derives intrinsic satisfaction from it, whether or not they make money from it).

Five true passions of computer users



The PC was dismissed by most professionals as a hobbyist's machine; a toy for amateurs

Included most children of young people who got into computing for the intellectual challenge, the desire to solve puzzles and problems, and the sheer fun of it. This is where the microscope of the second, culture computer goals come from. In a diagram it has an element of truth to it. As one user wrote last, "women use technology: men learn to love with it." There were a lot of really boys sticking at computer science, teaching them about programming, writing games, and not getting too caught up through the 1970s and '80s.

## Getting personal

I got bored with computing and all of its technical, graphics, design and animation. I used PCs for (opportunity in the early '80s, and

learned to hate DOS, dismissed the idea in 1984 and really liked it, and had my own true tech toy obsession, with the Commodore Amiga computer, between 1985 and 1988. During that decade of the 1980s, the biggest "fun" in good" years, I saw computing as an experiment with two very different faces. At one extreme end of the spectrum was computing as an expression of cultural identity: a technology to serve the worship of efficiency, surveillance and control, and automated justice: regardless of human or social cost. This was computing as "information processing," ultimately a tool to increase the power of the ruling hierarchy.

At the other extreme was computing as communication, a medium of learning, development and community. In my Macintosh view

of "good" computing, the PC could be a tool both for personal identity and for the free sharing of thoughts and information across social and geographical boundaries.

In between these two extremes, made almost computer technology added vast power, learning and fun in a dynamic, ever-changing area that stimulated its right progress. In truth, computers like most human inventions, are both an academic and a cultural medium. I wasn't naive enough to believe, "hobbyist, but good" or "good" but I think I was capable of seeing a potentially harmful side to a technology that I enjoyed using and promoting.

## The community memory

When I first saw *The Computer Paper* in the late 1980s, I enjoyed making it because it was a little something good for the commercial and social sides of computing in Canada. Inside any issue of *The Computer Paper* there was a wide range of voices. On the one side were functions, particularly with a computer that same way they would have sold rights to the computer as products. There were also computer enthusiasts trying to write honestly and accurately about how to get the most personal, financial and educational value from computing.

There was a good deal of criticism of the idea of *The Computer Paper* which drove me to go forward in it. And as a free-lance, and then as an employee, I participated in reviews at *Computer* and later at *Computer Canada*, a way to help our readers meet computer professionals, so that tech groups could then learn and learn from each other.

During the four and a half years that I have worked full-time for TCP I started up the Test Lab. I was a really simple minded for a year, then I had to try and making hundreds of computer products. All of us in TCP tried our best to be the best honest in our assessments of PC hardware and software. We tried to build a reputation for reliability in the editorial content would be the advertising, delivering a clear, useful "good read" to us in the hands of our readership.

But, change is the one constant in the tech life, so, my fellow Canadians: it is with a heavy heart that I must announce that this is the last *Test Lab* I'll write in as employee of *The Computer Paper*. It is amazing how to work for a small Canadian (hobbyist) software company, okay? You at the back—stop cheering, already!

Adrian, in the interests of truth and full disclosure (however I do have to say this although I will no longer be a full-time writer for TCP), I have been offered the chance to continue to write the *Test Lab* column. I just won't be writing it as an employee of *The Computer Paper* anymore. Although you need this, as of May 1990, maybe not even. See you next month. ☐

Jeff Evans, the author of *Canadian Technology* and *How to Use the Best Software*, has been a full-time writer for the *BC Edition*, *Microcomputer* and *Network* magazines for 10 years. He is currently in British Columbia.

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### Introducing: Smart Solutions!

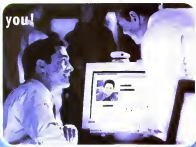
Introducing Smart Solutions. Smart Solutions is an innovative way to provide an excellent service and solution for your business. Smart Solutions is a medium sized company that provides solutions through the internet. We dedicate our efforts to harnessing the speed, efficiency and power of the Internet for Executive Businesses simply, quickly, reliably and affordably.

Our leading product line, **SmartMailbox**, is an innovative way for your company to exploit the advantages of the Internet without the overwhelming costs normally associated with technology.

### Smart Solutions!

• Easyhosting • SmartMAIL • SmartLAN • PrimeTime Dedicated

Imagine giving your customers 24 hours a day access to your business. Smart Solutions is a medium sized company that provides solutions through the internet. We dedicate our efforts to harnessing the speed, efficiency and power of the Internet for Executive Businesses simply, quickly, reliably and affordably.



**Saving your company time and money!**

How about creating an interactive web site that allows your customers to explore your latest products and services online? You can do this online securely through a secure connection. It's a great way to reach your customers (and your sales) online. Smart Solutions is about more than just getting your business online. It's about providing your customers with a secure, interactive online environment that allows you to save time and money.